



University of Colorado  
Anschutz Medical Campus

# ACADEMIC CATALOG

Fall 2022/2023

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# CU ANSCHUTZ

## CU Anschutz: Where Tomorrow's Breakthroughs Happen Today

The University of Colorado Anschutz Medical Campus is the largest academic health center in the Rocky Mountain region, and a world-class medical destination at the forefront of transformative education, science, medicine, and healthcare.

The campus includes the University of Colorado health professional schools, multiple centers and institutes and two nationally ranked hospitals, UCHealth University of Colorado Hospital and Children's Hospital Colorado, which treat nearly 2 million patients each year. All interconnected, these organizations collaboratively improve the quality of patient care they deliver, research they conduct, and health professionals they train.

### CU Anschutz

#### Fitzsimons Building

13001 East 17th Place

Aurora, CO 80045

info@cuanschutz.edu

Phone: 303-724-5000

Website: <https://www.cuanschutz.edu/>

## How to Use this Catalog

The About CU Anschutz (p. 6) section provides information about CU Anschutz that is beneficial for prospective and current students, faculty, staff, and members of our campus community. The information in this section includes:

- About Our Students (p. 7)
- Campus Map, Parking, Directions (p. 7)
- Offices on Campus (p. 9)
- Campus Safety (p. 15)
- Accreditation (p. 17)
- University Leadership (p. 20)
- Campus Facilities Information (p. 21)

Further information stating purpose and intent of the academic catalog is housed in the About the Catalog (p. 23) section, followed by additional sections outlining policies, procedures, services, and academic offerings at CU Anschutz, including:

- University Policies (p. 23)
- Admissions (p. 47)
- Financial Information (p. 49)
- Academic Standards and Policies (p. 57)
- Schools, Colleges, and Programs (p. 65)
- Academic Services and Student Support (p. 453)
- Commencement Procedures and Information (p. 456)
- Co-Curricular Engagement (p. 457)
- Programs Listed by Degree (p. 457)
- Courses A-Z (p. 458)
- Programs A-Z (p. 624)

## Welcome to CU Anschutz

It is with great pride that I welcome you to the University of Colorado Anschutz Medical Campus. As the largest academic health sciences center in the Rocky Mountain region and a world-class medical destination at the forefront of innovation, we offer countless opportunities for future leaders in health and medicine.

Our dynamic campus offers the programs and resources to help you fulfill your academic goals, and to prepare you to thrive - and lead - in your chosen field.

**Ample course offerings:** With over 40 degree programs offered through six schools and colleges, and faculty who are among the best in their fields, here you will find an enriching learning environment and everything you need to make the most of your educational experience.

**Interdisciplinary collaboration:** We are always looking to remove barriers and promote collaboration in the health sciences. Our academic programs are designed with a real-world interdisciplinary focus and will have you learning alongside peers in a variety of career paths.

**Hospital partners:** Our campus is also home to two nationally recognized hospital partners - UCHealth University of Colorado Hospital and Children's Hospital Colorado - which not only provide some of the finest patient care in the country, but also offer hands-on training opportunities to our students.

And with more than 60 centers and institutes, robust industry connections and diverse research programs, you are bound to find tremendous opportunities for learning and discovery beyond the classroom and the laboratory.

Whatever course of study you choose at CU Anschutz, you become part of a vibrant community of leaders and innovators dedicated to careers of health, healing and hope.

We are excited to welcome you to our campus community, and hope your time here will be nothing short of transformational.

Don Elliman  
Chancellor

## Mission and Vision

### Mission and Vision of the CU Anschutz Medical Campus

**Mission:** with innovation, agility, and excellence, we improve humanity by preventing illness, saving lives, educating health professionals and scientists, advancing science, and serving our communities.

**Vision:** to provide the finest team-based healthcare, science, and education in the world by being collaborative architects that respond quickly to the changing needs of society and engage and honor the community around us through lenses of diversity, equity, and inclusivity, mental health and wellness, and data sciences.

### Mission Areas Five Strategic Initiatives

As we look back at an impressive fifteen-year history of excellence – and ahead to an even brighter future – we are positioned to achieve more than we could have thought possible.

We gathered over 700 campus and community members to determine how to become the best academic medical campus in the country. Based on their recommendations, over the next five years we will focus on innovation and collaboration to better serve our students and trainees, our faculty and staff, our patients and the broader community.

In the coming years, we will pursue the following five strategic initiatives to reach these goals.

## Leverage Data

The future of healthcare is in the harmonization and smart application of data. We will build an integrated data infrastructure by investing in data analytics, health AI and bioinformatics.

By closely coordinating the vast amounts of information available to our work, we bring real-time data to our fingertips and make vital insights more accessible. Integrating data will help us uncover possibilities in research and patient care to push the boundaries of what's possible to improve more lives across the Rocky Mountain region and beyond.

Creating a stronger data infrastructure will also give us an opportunity to monitor our success in diversity, equity and inclusion, and hold ourselves accountable to our goals.

## Build a Healthcare Innovation Institute

Working across disciplines is key to the continued success of CU Anschutz. A healthcare innovation institute will accelerate collaboration and speed breakthroughs to market.

Such an institute is more than a building or a center - it is a vehicle to create new partnerships and pathways to propel research discoveries.

A healthcare innovation institute will step up the collaboration across disciplines already taking place on campus and attract more industry partners interested in fostering innovation, entrepreneurship and delivery of patient care.

## Enhance the Student Experience

At our core, we are an academic medical campus supporting learners to be the best in the healthcare workforce.

Connecting existing student support services and scaling up others will help ensure future leaders training here benefit from a strong sense of belonging and thrive in an environment that promotes wellness. Growing our base of services and making resources for mental health and wellness easy to access will help us accomplish this goal.

As our campus continues to expand and attract the best and the brightest students from diverse backgrounds, we are also committed to investing in their success. With an eye toward diversity, equity and inclusion, we will make the CU Anschutz Medical Campus a welcoming and accessible destination for a diverse community of learners.

## Partner on Patient-Centered Care

One of our primary missions on this campus is to save and improve lives –not just in Colorado, but across the region, country and globe. Ensuring that patients are informed and have access to the resources they need to make educated decisions about their own care is a big part of how we do that.

Working closely with UHealth, Children's Hospital Colorado and other healthcare partners, we will make medicine easier and more accessible for patients.

By bringing the latest and best technologies to improve access and care – telehealth, econsults, remote monitoring and more - we will empower our patients by giving them the tools to navigate their own care and by putting their own data to work for them.

## Invest in Our People

Our people are our greatest asset. By investing in their growth and development, we help them reach even greater heights.

Over the next several years, we will identify new ways to help our employees advance in lasting, fulfilling careers within the University of Colorado system.

That is why we will be designing career pathways to expand access to employment, inspire professional growth, promote mental health and wellness, and accelerate career advancement.

We will also be pursuing hiring practices that promote a diverse and inclusive workforce, as well as evaluating innovative approaches to tenure and promotion. These are just a few of the strategies we will pursue in the coming years.

## About CU Anschutz

The University of Colorado Anschutz Medical Campus is the largest academic health center in the Rocky Mountain region, and a world-class medical destination at the forefront of transformative education, science, medicine, and healthcare.

The campus includes the University of Colorado health professional schools, multiple centers and institutes and two nationally ranked hospitals, UHealth University of Colorado Hospital and Children's Hospital Colorado, which treat nearly 2 million patients each year. All interconnected, these organizations collaboratively improve the quality of patient care they deliver, research they conduct, and health professionals they train.

## Long History of Academic, Research, and Treatment Excellence

The roots of CU Anschutz' health science programs stretch back to the School of Medicine opening in Old Main at the University of Colorado in Boulder in 1883, with the College of Nursing following 15 years later in 1898, and the Skaggs School of Pharmacy in 1913.

In the 1920s the University's School of Medicine continued to grow, requiring a move from Boulder into a quadrangle of four brick buildings at Ninth Avenue and Colorado Boulevard in Denver to better serve both students and the community. The new Denver campus location eventually became known as the University of Colorado Health Sciences Center, and home to the University's health sciences programs. The construction and move were joined by the creation of Colorado General Hospital, the forerunner to today's UHealth University of Colorado Hospital.

Meanwhile, the current site of the CU Anschutz Medical Campus in Aurora was known as General Hospital 21, founded as a military hospital by the U.S. Army during the First World War to treat soldiers suffering from tuberculosis and other lung diseases. It was renamed to honor Lieutenant William Thomas Fitzsimons, the first US Army officer killed in World War I.

To continue providing help in treating tuberculosis and other medical conditions on a larger scale, a new main hospital building was constructed. The hospital was dedicated on December 3, 1941, and

following the outbreak of the Second World War, as one of the largest and most modern military hospitals in the country, the Fitzsimons campus played a key role in caring for sick and wounded soldiers during the war.

The Fitzsimons campus has even provided care to the Commander in Chief. In 1955, President Dwight D. Eisenhower recovered from a heart attack at Fitzsimons. As his health improved, he often went to the large eighth-floor sundeck of where he used binoculars to observe the mountains.

As the Fitzsimons hospital continued to care for members of the armed services through the second half of the 20th century, CU health programs broke new ground, with the School of Nursing launching the first nurse practitioner program in the country in 1965, and the School of Dentistry opening in 1973, joining the University's other health science programs at the University of Colorado Health Sciences Center in Denver.

These new programs built upon a decades-rich history of health sciences breakthroughs and discoveries at the University of Colorado Health Sciences Center, which included innovative research done to improve child welfare, pioneering work on open heart surgeries, critical advancements in public health policy, and the first ever liver transplant.

## Growth, Base Closure, and a New Vision

By the late 1990s, however, the sustained success and growth at the University of Colorado Health Sciences Center ran into space limitations as the city of Denver had grown around the campus. A new home would be needed to continue to provide new transformative health discoveries for Colorado and the world.

At the same time, the Fitzsimons army campus was slated for closure by the military, as many of its functions had moved to Fort Sam Houston in Texas.

Noting the historical importance of a major health center in Colorado and envisioning the promise and potential of centralizing and connecting health education, care, and research on a single campus, local, state, and university leaders worked together with the goal of transforming the historic military medical center in Aurora into an innovative health sciences community by moving the University of Colorado Health Sciences Center and its schools and colleges to the land.

In 2006, the Fitzsimons campus, the eventual new home for the University of Colorado Health Sciences Center, was renamed the University of Colorado Anschutz Medical Campus in recognition of more than \$90 million in donations from The Anschutz Foundation to help in the construction of brand new education, research, and patient care facilities on the grounds.

Two years later, the academic and research operations of all CU health sciences schools and colleges relocated to the new campus on the former army base grounds. This move also included the founding of a brand new School of Public Health for the state; founded as a collaborative venture between the University of Colorado, Colorado State University and the University of Northern Colorado. UCHS University of Colorado Hospital also joined in the move to the Anschutz Medical Campus, along with Children's Hospital Colorado, to realize the vision of a fully integrated health sciences campus.

As the CU Anschutz Medical Campus has evolved and grown, so has the city and region we call home. Colorado's third largest city, Aurora is home to a budding arts scene, hundreds of ethnically diverse restaurants, and recreational opportunities ranging from boating to hiking. And with

the Rocky Mountains a short drive away, there is no better location to be inspired by your surroundings than Colorado.

## About Our Students

The University of Colorado Anschutz Medical Campus serves more than 4,500 students in more than 46 highly rated degree programs across six schools and colleges, including the School of Medicine, College of Nursing, Skaggs School of Pharmacy & Pharmaceutical Sciences, School of Dental Medicine, Colorado School of Public Health, and Graduate School - where learning is integrated with state of the art research in an environment designed to foster innovation and interdisciplinary study.

Each year, CU Anschutz graduates approximately:

- **116 Dentists**
- **183 Medical Doctors**
- **514 Nurses**
- **171 Pharmacists**
- **88 PhD Graduates across Disciplines**
- **47 Physician Assistants**
- **66 Physical Therapists**
- **213 Public Health Practitioners**

## Campus Map, Parking, Directions

For information regarding **Transportation, Parking, and other Maps**, please visit the Facilities Management website (<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/>).

Additionally, a **Virtual Tour** of the CU Anschutz Medical Campus is available through this site (<http://cuanschutz.edu/tour/>).

Click here (<https://www.cuanschutz.edu/about/cu-anschutz-map/>) for an interactive and mobile friendly version of the campus map.

## Contact Info

### Parking & Transportation

Fitzsimons Building (formerly Building 500)  
(1st Floor west side of the Food Court seating area)

Hours:  
7:30AM-4:30PM (Weekdays)  
Phone: 303-724-2555  
Fax: 303-724-0079

After hours: 303-724-4444

## Carpool Parking

University staff and students who are on the Anschutz Medical Campus may sign up for carpool parking as an alternative to regular permit parking. Two or more eligible university staff or students must enroll, and they must work or go to school on the Anschutz Medical Campus. At least two members of the carpool will be responsible for paying the fee. Failure to comply with carpool rules may result in the permit being revoked.

## Bikes and Scooters

Bike racks are located near entrances to each building. Additionally, for year round convenience there are bicycle lockers available on the ground floor in the south east corner of the Henderson Parking Structure.

Throughout campus bicycles should only be parking in the designated lockers and racks. Bicycles should not be chained or in anyway fixed to landscaping, rails, trees or light poles and are not allowed inside any building. Bicycles found in unauthorized areas will be removed and will need to be retrieved from University Police.

Scooter parking is available in designated areas across campus. Scooters should only be parked in these designated locations. Scooters should not be parked in bicycle racks. Please do not attempt to enter gated permit parking with a scooter as it may cause problems with the gate system and your parking access.

Motorcycle parking for permit holders is available in designated areas on campus. Motorcycles should only be parked in these designated locations. Please do not attempt to enter gated permit parking with a motorcycle as it may cause problems with the gate system and your parking access.

Motorcycle parking for visitors is in the designated visitor pay parking lots and the motorcycle must be accompanied by a parking receipt as proof of payment.

## Special Events Parking & Transportation

The Parking and Transportation Services Division can provide parking for special events to be held on campus. Departments hosting these events must complete the event request through the link below. When that form is received the Coordinator will provide options for parking, if space is available. For more information, please visit the website (<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/parking/special-events-parking/>).

It's important that departments make these arrangements **before** sending out invitations because the parking alternatives change from month to month. Departments will be charged for the cost of providing staffing at special events and for parking.

Rates for staff will depend on the details of the event and will be discussed after the form has been submitted.

To request parking or transportation for your special event, please use the EMS web portal (<https://schedule.ucdenver.edu/emswebapp/>) to reserve our services.

## Permit Parking

Monthly permit parking rates are based on a calendar month; part-time parking rates are also available. More information on current rates and other policies for students, staff, and faculty are available via this website (<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/parking/permit-parking/>).

## Visitor Parking

On the CU Anschutz Medical Campus, there are daily cash customer parking lots for CU Anschutz Medical Campus Patients and Visitors: Parking for patients or visitors is located at any parking lot signed "Patient and Visitor Parking" and at parking meters. For additional information, including current daily rates, please visit the website

(<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/parking/visitor-parking/>).

## Reciprocal Parking

University of Colorado faculty and staff who have a valid full time parking permit may take advantage of this reciprocal parking agreement. Valid parking permits include ones issued by UCB, UCCS, CU Denver and Auraria. This agreement applies only for travel related to the performance of official university business. You must display in your car window the official parking permit that was issued to you from your home campus. The CU reciprocal parking arrangement is valid for specific designated parking lots only and availability is based on "first-come, first-served."

For additional information about this policy, and to access respective reciprocal maps for other campuses, please visit the website (<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/parking/reciprocal-parking/>).

## Citations and Appeals

Any misuse or illegal alteration of parking permits or entry cards or repeated violations of any of these regulations may result in not only a citation, but also the revocation of parking privileges and/or possible criminal prosecution.

Any person receiving a university parking citation shall respond to the Parking and Transportation Services Division ([https://www.cuanschutz.edu/docs/librariesprovider260/transportation-parking-maps/citationappealform.pdf?sfvrsn=4651b9b9\\_0](https://www.cuanschutz.edu/docs/librariesprovider260/transportation-parking-maps/citationappealform.pdf?sfvrsn=4651b9b9_0)) within 14 calendar days of the issue date to pay the fine or to initiate an appeal. Citations not paid or appealed within 14 calendar days of the issue date will be subject to additional fees. Appealing a citation will delay this fee until a decision has been made on the appeal. Payment by mail is also acceptable. Non-payment of outstanding fines may result in the loss of parking privileges and/or the immobilization or towing of the vehicle.

Vehicles illegally parked in fire lanes, driveways, access roads or "no parking" areas may be towed when necessary to provide access for emergency vehicles, construction vehicles, or to provide normal traffic flow. Driving on sidewalks or service-drives is prohibited except by service or emergency vehicles.

## Appeal Process

Penalty actions and citations may be appealed to the Parking Appeals Referee. Appeals must be received by the Parking Office within 14 calendar days of the issue date of the citation. Failure to meet this requirement will result in forfeiture of the appeal right. The decision of the Appeal Referee is final, and will be emailed to the appellant normally within 10 days. If the appellant does not hear from the Referee within 20 days, he/she should contact the Parking and Transportation Services Division. If the payment of the fine the Referee sets as the result of an appeal is not received by the Parking and Transportation Services Division within 10 days of the date of notification, the original fine prevails.

## Tow/Immobilization of a vehicle

A vehicle parked in violation of these regulations may be towed at any time deemed necessary by the Parking and Transportation Services Division. An accumulation of more than three (3) unpaid citations or citations amounting to an unpaid dollar amount of \$90.00, constitutes grounds for immobilization (booting). The vehicle will not be released until the unpaid amount has been paid. There will also be an



additional boot fee of \$45.00. The owner/driver of a towed vehicle will be responsible for paying the towing company's fee.

### Disabled Vehicles

In the event of a mechanical failure of a vehicle, the owner or driver will be responsible for its removal as soon as available services will permit. Abandoned vehicles will be towed or impounded at the owner's expense. University facilities may not be used to store any vehicle. Exceptions to this policy may be made for those faculty and staff who are traveling on university business. Arrangements may be made by contacting the Parking and Transportation Services Division at 303-724-2555. Vehicle maintenance or repair is not permitted in campus parking facilities except for tire repairs, windshield replacement, and "jump starts".

For more information on this, please visit the website (<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/parking/citations-appeals/>).

### RTD Eco Pass

Your RTD Eco Pass is not just for commuting to and from campus. You have unlimited rides on regular fixed route service provided by RTD and all RTD contractor-operated fixed route service, including bus and Light Rail. Eco Pass includes the Call-n-Ride and Airport bus and rail services. Plan your trip at

RTD's Trip Planner Tool (<https://www.rtd-denver.com/app/plan/>) to see how this can work for you!

Full time and part time staff and faculty on the Anschutz Medical Campus are eligible to participate in the Eco Pass program.

RTD Eco Pass: \$25.00 per month

For other RTD Eco Pass plus permit parking options, visit the CU Anschutz Parking (<https://www.cuanschutz.edu/offices/facilities-management/parking-transportation-maps/parking/>) page.

The replacement fee for a lost Eco Pass is \$25.00 the first time and \$50.00 the second time.

**Your Eco Pass does not include: Guaranteed Ride Home, Access-a-Ride, Broncos Ride, Rockies Ride, Run Ride, Buff Ride, Saturday Shopper, Senior Ride and other special event services.**

Calculate how much you can save by taking public transportation instead of driving using a fuel savings calculator (<http://www.publictransportation.org/tools-calculators/fuel-savings-calculator/>).

The benefits resulting from the RTD Eco pass program include:

- Decreased cost to access public transportation will provide alternative methods of commuting to campus as well as providing transportation throughout the RTD service area.
- Decreased on-campus parking, which will help alleviate the over-demand for limited parking resources.
- Contribution toward the University Sustainable Campus goals by reducing the amount of automobile emissions from a reduced amount of personal vehicles used commuting to campus, as well as transportation throughout the RTD service area.
- Increases take home salary by using pre-tax dollars instead of after-tax dollars

For more information on the RTD Eco Pass please visit RTD's Eco Pass Page (<https://www.rtd-denver.com/fares-passes/ecopass/>).

*\* Reminder - degree seeking students enrolled in a degree program at the Anschutz Medical Campus already pay a mandatory student use fee for the RTD College Pass program.*

## CU Anschutz Medical Campus Location

**CU Anschutz  
Fitzsimons Building**  
13001 East 17th Place  
Aurora, CO 80045

### Directions to Campus

#### From Downtown Denver

- Take Colfax Avenue east for about 10 miles
- Turn left on Fitzsimons Parkway

#### From Denver International Airport

- Take Pena Blvd. south to I-70 and go west
- At fork, merge left onto I-225 south
- Exit Colfax Avenue
- Turn right (west) at Colfax
- Turn right on Fitzsimons Parkway

#### From the North

- Take I-25 south
- Exit I-70 east
- Exit I-225 south
- Exit Colfax Avenue
- Turn right (west) at Colfax
- Turn right on Fitzsimons Parkway

## Offices on Campus

### Alumni Relations Office

The Alumni Relations Office at University of Colorado Anschutz Medical Campus is the central office responsible for connecting and engaging alumni to their alma mater. As well as guiding the individual alumni association programs for the Schools of Medicine and Dental Medicine, the College of Nursing, the Colorado School of Public Health, and the Physical Therapy and CHA/PA Programs, the office also supports alumni program activities for the School of Pharmacy, the Graduate School, and for alumni of the residency programs affiliated with the University.

The Alumni Relations Office maintains records of alumni; plans alumni events in Colorado and throughout the U.S.; coordinates alumni board meetings and activities; sponsors annual meetings; hosts class and school reunions as well as student/alumni programs; and partners with the Office of Advancement to assist with alumni giving. The Alumni Relations Office also publishes magazines, newsletters, and e-newsletters for all alumni associations of the CU Anschutz Medical Campus.

Phone: (303) 724-2518 or toll-free at 1-877-473-ALUM

Email: [healthalumni@ucdenver.edu](mailto:healthalumni@ucdenver.edu)

Website: <https://www.cuanschutz.edu/offices/advancement/alumni/>  
(<https://www.cuanschutz.edu/offices/advancement/alumni/>)

## Bookstore

The CU Anschutz Medical Campus Bookstore is designed to meet the needs of our busy faculty, staff, and students, providing convenient one-stop shopping. The Bookstore carries many products including:

- Medical reference titles and can special order any resource that may not be in stock, including campus authors
- Select medical equipment and supplies
- CU emblematic goods including t-shirts, sweatshirts, water bottles, stickers, and many school-specific items
- Convenience items such as greeting and gift cards, office supplies, single dose medications (aspirin, ibuprofen, cold medications, etc...) and personal hygiene items
- Scrubs and lab coats which can be embroidered with the University Seal.

Location: Education 2 South, 1st Floor

Phone: 303-724-BOOK (2665)

Fax: 303-724-9776

Website: <https://cuanschutz.bncollege.com>

## Bursar's Office

When a student begins researching higher education institutions, tuition is often the first stop. The Bursar's Office provides services in the areas below. Additional information can be viewed via the Financial portion of the academic catalog by clicking here (p. 49).

- Application Fees Payments
- College Opportunity Fund
- Departmental Deposit Transactions
- Tuition and Fee Payments
- Refunds and Direct Deposits
- Student Account Reconciliation
- Third-Party Billing
- Student Balance Outreach
- Past Due Tuition Collection
- Tax Offsets

Location: Education 2 North, Suite 3120A

Office Hours: 8:00AM-5:00PM

Address: Bursar's Office, Mail Stop A098, 13120 East 19th Avenue, Room 3120A, Aurora, CO 80045

Phone: 303-315-1800

Fax: 303-315-1805

Email: [Bursar@ucdenver.edu](mailto:Bursar@ucdenver.edu)

Website: <https://www.cuanschutz.edu/student-finances/billing-payments> (<https://www.cuanschutz.edu/student-finances/billing-payments/>)

## Financial Aid & Scholarships Office

While the world of financial aid can seem intimidating, if you break it down and put in the work, making financial aid work for you will be the first step toward opening a door to your future. The Financial Aid and Scholarships Offices provides services in the areas below. Additional information can be viewed via the Financial portion of the academic catalog by clicking here (p. 49).

- How to apply for financial aid
- Free Application for Federal Student Aid (FAFSA) <https://fafsa.ed.gov/>
- Work-study and student employment opportunities

- Grant and student loan information
- Special circumstances, academic progress or financial hardship appeals
- Scholarships Information

Location: Education 2 North, Student Services Suite (3rd Floor)

Address: Financial Aid & Scholarships Office, Mail Stop A088, Education 2 North, 13120 E. 19th Avenue, Aurora, CO 80045

Phone: 303-724-8039

Email: [FinAid@CUAnschutz.edu](mailto:FinAid@CUAnschutz.edu)

Website: <https://www.cuanschutz.edu/student-finances/financial-aid> (<https://www.cuanschutz.edu/student-finances/financial-aid/>)

## Health Insurance for Students

The University of Colorado Denver | Anschutz Medical Campus is pleased to offer both health insurance and dental insurance to our students. For inquiries about the insurance plans offered at CU Anschutz or waiver requirements, please contact the Office of Student Health Insurance at [studentinsurance@cuanschutz.edu](mailto:studentinsurance@cuanschutz.edu) or call 303-837-2127. Additional information is available online (<https://www.cuanschutz.edu/student/health-wellness/student-health-insurance/>).

### HEALTH INSURANCE

All students enrolled in one or more hours in a degree-seeking or certain certificate programs are required to have insurance. As a result, all eligible students taking one or more credit hours are automatically enrolled in and billed for the Student Health Insurance Plan.

Students who wish to waive the coverage must do so each semester by providing proof of comparable coverage that meets all waiver requirements within the published time frame.

International students on a J-1 visa, please contact the Office of International Student & Scholar Services (ISSS) for additional visa based requirements.

### DENTAL INSURANCE

All students are eligible to enroll in the dental plan, with the exception of certain PhD students in the Graduate School who receive the coverage through a stipend. This plan is voluntary and enrollment is annual beginning each fall. Newly enrolled students have the option to opt-in mid plan if their program begins in the spring.

## International Student and Scholar Services (ISSS)

From pre-departure to orientation, ISSS provides immigration and advising services for F-1 or J-1 student visas, J-1 exchange scholar visas, H-1B temporary worker visas, lawful permanent resident visas, and LPR-employment-based visas. ISSS also provides checklists for students' pre-arrival organization and planning, and a comprehensive international student orientation before classes start. Please see Academic Services and Student Support (p. 453) in this catalog for more information, or visit ISSS online via their website (<https://www.ucdenver.edu/services/international-student-and-scholar-services/>).

Address: 13001 East 17th Place; Fitzsimons Building, Suite C8000D; Aurora, CO 80045

Phone: 303-315-2230

Email: [iss@ucdenver.edu](mailto:iss@ucdenver.edu)

## LGBTQ+ Hub

The mission of the LGBTQ+ Hub is to create and maintain an inclusive campus environment for LGBTQ+ and allied students, faculty, staff, patients and visitors on campus and within the Aurora community by:

- Promoting visibility, awareness and a sense of community;
- Connecting LGBTQ+ students, faculty and staff with peer-to-peer support and community resources;
- Providing education about the LGBTQ+ community;
- Establishing a repository for LGBTQ+ health research and competent patient care;
- Advocating for LGBTQ+ interests, including recruitment and retention; and
- Creating intentional partnerships to provide direct services to LGBTQ+ people on campus and in the Aurora community.

The LGBTQ+ Hub is envisioned as a one-stop shop that can achieve a campus and Aurora community culture where LGBTQ+ people are highly visible, are fully included and integrated in leadership, day-to-day living, communication and dialogue, and where vibrant partnerships exist between the LGBTQ+ Hub and the campus and Aurora communities-at-large.

Additional information on the LGBTQ+ Hub, including Core Beliefs, Guiding Principles, and Values, and programs and services supported are available online (<https://www.cuanschutz.edu/offices/diversity-equity-inclusion-community/programs-and-initiatives/lgbtq-hub/>).

Located within the Office of Diversity, Equity, Inclusion, and Community Engagement.

Email: [lgbtqhub@cuanschutz.edu](mailto:lgbtqhub@cuanschutz.edu)

## Office of Disability, Access, & Inclusion

The Office of Disability, Access, & Inclusion welcomes qualified students with disabilities (e.g. psychological, learning, chronic health, sensory, or physical) and is committed to providing equitable access to our programs. Students who meet the technical and admission standards of our programs (with or without accommodations) partner with our office to establish access by identifying and removing barriers related to their disability.

### Core Functions of the Office of Disability, Access, & Inclusion

- Partner with students and programs to ensure an accessible and inclusive experiences
- Coordinate, implement, and support individual and programmatic access through accommodation and education
- Serve as a resource to students/faculty/staff to facilitate and nurture an accessible and inclusive learning and training environment

Location: Strauss Health Sciences Library

Phone: (303) 724-5640

Address: 12950 East Montview Boulevard, Aurora, CO 80045

Virtual Hours: 8:00am-5:00pm (Monday through Friday)

Email: [disabilityaccess@cuanschutz.edu](mailto:disabilityaccess@cuanschutz.edu)

Website: <https://www.cuanschutz.edu/offices/office-of-disability-access-and-inclusion> (<https://www.cuanschutz.edu/offices/office-of-disability-access-and-inclusion/>)

## Office of Diversity, Equity, Inclusion and Community Engagement

The Office of Diversity, Equity, Inclusion and Community Engagement was established in July 2020, and will be implementing best practices as it relates to diversity, equity and inclusion for students, staff, faculty and visitors on campus, and will maintain and develop mutually beneficial partnerships with the community.

This office will focus on implementing, centralizing and improving programs and initiatives around diversity and health equity; inclusion and outreach; and community engagement.

Location: Fitzsimons Building

Address: 13001 East 17th Place, Suite CG001, Aurora, CO 80045

Email: [odeice@cuanschutz.edu](mailto:odeice@cuanschutz.edu)

Website: <https://www.cuanschutz.edu/offices/diversity-equity-inclusion-community> (<https://www.cuanschutz.edu/offices/diversity-equity-inclusion-community/>)

## Office of Equity

The Office of Equity exists to strive to stop, prevent, and remedy discrimination, harassment, sexual misconduct, and any related retaliation; provide education, training and outreach; design policies and procedures to make our campus safer and more inclusive; and ensure all individuals are treated with dignity, compassion, and respect. We are working to make our campus a community in which Respect is Expected.

The Sexual Misconduct Policy prohibits:

- Sexual assault: non-consensual sexual intercourse
- Sexual assault: non-consensual sexual contact
- Sexual exploitation (such as taking or sharing intimate photos without consent)
- Dating or domestic violence
- Gender-based stalking
- Sexual harassment (hostile work environment and quid pro quo)
- And any retaliation taken against those involved in the reporting process.

The Nondiscrimination Policy prohibits discrimination or harassment on the basis of race, color, national origin, pregnancy, sex, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, or political philosophy.

To report an incident of sexual misconduct, discrimination, harassment, or retaliation or to request a training, please contact the Office of Equity at:

Location: Education 2 North, Room 5221

Phone: 303-315-2567

Email: [equity@ucdenver.edu](mailto:equity@ucdenver.edu)

Address: 13120 E. 19th Avenue, Room 5221, Aurora CO 80045

Website: <https://www1.ucdenver.edu/offices/equity> (<https://www1.ucdenver.edu/offices/equity/>)

## Office of Inclusion and Outreach

The mission of the Office of Inclusion and Outreach is to provide sustained, comprehensive programs across all educational levels to promote access and increase numbers of underrepresented populations in healthcare, STEM (science, technology, engineering and mathematics) and research professions.

The vision of the Office of Inclusion and Outreach is to increase numbers of underrepresented populations in healthcare, STEM and research. We also will contribute to a future generation of professionals who aspire to reduce disparities among underserved communities.

Values:

- Take a holistic approach to student engagement.
- Addressing health inequities
- Improving cultural sensitivities and responsiveness
- Foster a welcoming, inclusive environment for the campus community
- Providing mentorship and leadership opportunities through networking and community involvement.
- Promoting excellence and innovation
- Bridging underrepresented populations through the P-20 spectrum to healthcare, STEM and research disciplines.
- Infusing empowerment by increasing social capital.

Location: Education 2 North, 5th Floor

Phone: (303) 724-8003

Email: UPP@cuanschutz.edu

Website: <https://www.cuanschutz.edu/offices/inclusion-and-outreach> (<https://www.cuanschutz.edu/offices/inclusion-and-outreach/>)

## The Office of Global Education | Study Abroad

The Office of Global Education / Study Abroad provides academically and professionally relevant international experiences to a diverse student population at the University of Colorado Denver | Anschutz Medical Campus. These experiences equip students with cross-cultural skills necessary to succeed in an interconnected global society. The Office of Global Education is committed to providing students with a wide range of engaging and affordable study, internship, research, and clinical opportunities.

International program offerings vary to meet the needs and interests of all students. These programs are open to undergraduate, graduate, and international students; it is not necessary to be a particular major to participate. Program lengths range from two weeks to an academic year or more. The vast majority of programs do not require language proficiency beyond the English language.

The Office of Global Education strives to keep study abroad programs affordable. In most cases, students are able to utilize financial aid and are eligible for an array of internal and external scholarships. For the most current information on programs, policies, and funding, please visit the Office of Global Education website at <https://www.ucdenver.edu/students/study-abroad> (<https://www.ucdenver.edu/students/study-abroad/>) or visit LynxConnect in the Tivoli.

**Location:** Tivoli Student Union, LynxConnect Suite 439

**Phone:** 303-315-2001

**Email:** [study.abroad@ucdenver.edu](mailto:study.abroad@ucdenver.edu)

**Website:** <https://www.ucdenver.edu/students/study-abroad> (<https://www.ucdenver.edu/students/study-abroad/>)

## Office of Information Technology (OIT)

The Office of Information Technology (OIT) (<https://www.ucdenver.edu/offices/office-of-information-technology/>) works in partnership with academic and business units to provide technical support to meet the needs of students, faculty and staff at the CU Denver | Anschutz Medical Campus. OIT serves as the primary source of campuswide technology

services (<https://www.ucdenver.edu/offices/office-of-information-technology/services/>) in partnership with school, college and department IT professionals.

Services range from providing wireless networks, email (<http://myemail.ucdenver.edu/>) and university passwords (<https://passport.ucdenver.edu/passwordreset/>), software (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/>), desktop services, security (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/cu-secure-and-multi-factor-authentication/>), and systems development, to protecting the integrity of the university's data and administrative systems. Additional resources are available from the student technology guide (<https://www1.ucdenver.edu/offices/office-of-information-technology/get-help/cu-anschutz-student-tech-guide/>) and technology tools and software (<https://www1.ucdenver.edu/offices/office-of-information-technology/get-help/working-remotely/tools-and-software/>) remote learning and working webpages.

Location: Education 2 North, 5th Floor

Address: 13120 East 19th Avenue, Aurora, CO 80045

Phone: (303) 724-4357

Website: <https://www.ucdenver.edu/offices/office-of-information-technology> (<https://www.ucdenver.edu/offices/office-of-information-technology/>)

## Office of Student Outreach and Support and the CARE Team

Office of Student Outreach and Support works to ensure that students are connected to the appropriate resources to meet their goals and develop new skills in navigating challenging experiences. The Office of Student Outreach and Support also takes a preventative approach to risk assessment by offering resources, referrals, and support to both students who may be displaying concerning behaviors and those impacted by those behaviors.

Faculty, staff, students, guests and concerned others are encouraged to refer students' behavior that they perceive as concerning, worrisome, or threatening to the Office of Student Outreach and Support. Referrals can be submitted online at <https://www.cuanschutz.edu/student/support/care-team> (<https://www.cuanschutz.edu/student/support/care-team/>).

The Office of Student Outreach and Support also supports the Campus Assessment, Response, & Evaluation (CARE) Team. This team of student affairs administrators and campus partners meets to address the health and safety needs of students as well as the campus community.

Per the Duty to Report Criminal and Threatening Behavior Policy, University staff, faculty, students and volunteers are required to report any threatening or criminal behavior to police and are encouraged to follow up with a Care Report. Additionally, per the CARE Team Policy all University staff, faculty, students, and volunteers are strongly encouraged to report concerning student behavior to the CARE Team. Referrals can be submitted online at <https://www.cuanschutz.edu/student/support/care-team> (<https://www.cuanschutz.edu/student/support/care-team/>).

## CU Anschutz Shares Fund

CU Anschutz Shares in an emergency fund available to all students.

The fund is coordinated by the Office of Student Outreach and Support at CU Anschutz. Applications are available online at <https://www.cuanschutz.edu/student/support/cu-anschutz-shares> (<https://www.cuanschutz.edu/student/support/cu-anschutz-shares/>). The funds are available on a first-come, first-served basis and the decision to



provide funding is made by the Office of Student Outreach and Support in conjunction with the Associate Vice Chancellor for Student Affairs or their designee.

## Office of the Registrar

### Lara Medley, Assistant Vice Chancellor and University Registrar

The Registrar's Office is committed to the delivery of quality, student-centered enrollment and academic support services through collaboration and the integration of technology. As stewards of student records and enrollment data, the department's goal is to provide judicious management and dissemination of student data for students, faculty, staff, and community constituents. The Office of the Registrar supports members of the CU Anschutz campus community in the following areas:

- Registration/Enrollment (p. 63)
- Name changes for current/former students
- Record changes (SSN, DOB, gender, etc.)
- Tuition Classification (p. 50) (i.e. In-State vs. Out-of-State Residency)
- Obtaining official transcripts (p. 64)
- Diplomas (p. 64)
- Education/degree verifications (p. 64)
- In-School Deferment requests
- Enrollment Verifications (p. 64)
- Family Educational and Privacy Rights Act of 1974 (FERPA) (p. 23)
- Application for graduation (p. 64) (via student portal)
- Leave of Absence/Withdrawal

Location: Education 2 North (3rd Floor), Student Services Suite  
 Address: 13120 East 19th Avenue, Campus Box A054, Aurora, CO 80045  
 Phone: 303-724-800  
 Fax: 303-724-8060  
 Email: Registrar@CUAnschutz.edu  
 Website: [www.cuanschutz.edu/registrar](https://www.cuanschutz.edu/registrar) (<https://www.cuanschutz.edu/registrar/>)

## Ombuds Office

The Ombuds Office is available to students, faculty, and staff to help resolve problems or conflicts in an informal, confidential manner. This office operates outside the usual review or appeal process and is entirely independent of any other department. The Ombuds is impartial and will not take sides, but will help clarify issues and direct visitors to the appropriate resources.

The Ombuds will listen, help to analyze the situation, identify and explain relevant university policies or procedures and will help to explore options with the visitor. Mediation services are also available. Because the Ombuds Office is not involved in any formal procedures, it does not accept notice of any type on behalf of the University of Colorado Anschutz Medical Campus.

The Ombuds Office is a designated confidential resource for all Title IX related issues. Conversations with the Ombuds are confidential and the identity of any individual seeking the help of the Ombuds will not be revealed. Please note, however, that confidentiality will not be maintained if the person has either expressly authorized contact with other individuals or the situation involves imminent threat of harm or danger.

Location: Fitzsimons Building, Room 7005C  
 Phone: 303-724-2950

Website: <https://www.ucdenver.edu/offices/ombudsoffice> (<https://www.ucdenver.edu/offices/ombudsoffice/>)

## Police Department

The University of Colorado Denver | Anschutz Medical Campus Police Department is an agency with full police authority providing public safety services to our campus community 24 hours a day, 7 days a week, each day of the year. The police department is made up of 65 employees dedicated to providing quality service to our campus.

The University Police Department maintains a full-service Police Department, staffed by 28 full-time law enforcement officers, to respond to and investigate reports of criminal acts and emergencies on the CU Anschutz Medical Campus. These officers are Colorado P.O.S.T. certified and hold police commissions with the State of Colorado. The University Police Department also employs 6 Security Officers.

### Mission

The University of Colorado Denver | Anschutz Medical Campus Police Department supports the educational, research, and patient care missions of the University by providing a prepared, safe and secure campus environment.

### Values

We value the following:

1. Ethics, honesty and integrity  
We act honorably in all we do, and believe that honesty and integrity are the cornerstones of our profession.
2. Rule of Law  
We perform our duties in a lawful manner and in accordance with the tenets of the United States Constitution, the Constitution of the State of Colorado, and the rules of the University of Colorado Board of Regents.
3. Fair and equitable treatment  
We embrace the diversity and culture of the community we serve. We do not tolerate discrimination of any kind.
4. Dignity  
We treat people with courtesy and respect at all times.
5. Technical competence  
We constantly strive to improve our job performance through continuous education and on-going training.
6. Prevention  
We act proactively to prevent criminal activity. We work collaboratively with the University community to ensure a safe campus environment in which to work, learn, and exchange ideas.

### Philosophy

The University of Colorado Denver | Anschutz Medical Campus Police Department's philosophy is to support the University through community partnerships, teamwork, technology and police authority to prepare and sustain an environment where people feel safe and secure.

Phone number: 303-724-4444  
 Address: Anschutz Medical Campus Building 407 (University Police); 12454 East 19th Place; F409; Aurora, CO 80045  
 Email: [university.police@cuanschutz.edu](mailto:university.police@cuanschutz.edu)  
 Website: <https://cuanschutz.edu/police> (<https://cuanschutz.edu/police/>)

## Printing Services

Printing Services offers self-service copiers in multiple locations on campus for 10 cents/copy per black and white page (color not available).



Students must create an account with Printing Services and pre-pay before they can use them. They can do this in person at their office on the 1st floor of the Fitzsimons Building or over the phone at 303-724-6410. Payment can be made via check, cash, or credit card. Please note that they do not have copiers located in their main office for student use.

Printing Services maintains copiers in the following locations:

- Education II North Room 2201
- Education I Room 1501
- Education I Room 2400
- Research Complex I North Room 1309
- Health Science Library Main

Printing Services also offers graphic design services and can accommodate larger printing jobs and projects, such as brochures, posters and more (with a \$10.00 minimum). Students, faculty and staff can drop off printing requests, consult with staff on any graphic design, poster and printing needs, and purchase paper - including thesis paper - by the sheet or ream. Printing Services handles any printing and mailing request.

Printing Services offers printing, design & layout, typesetting, copying, binding, posters, banners, bulk mailings, miscellaneous printed projects.

Whatever the project, big or small, Printing Services is happy to help in order to meet your needs with cost efficiency, high quality and a quick turnaround time.

Location: Fitzsimons Building, 1st Floor, near the Badging Office and USPS kiosk

Phone: 303-724-6410

Website: <https://www.ucdenver.edu/offices/printing/services> (<https://www.ucdenver.edu/offices/printing/services/>)

Email: [printing.services@ucdenver.edu](mailto:printing.services@ucdenver.edu)

## Security Badging Office

### Video Surveillance

The University has installed cameras in key areas of the campus to monitor and record a variety of security. Generally, cameras are installed on roofs, at primary entrances and in interior spaces where security monitoring is important. Programs capture camera imagery, when involved in an alarm, to display to the police dispatchers. Cameras are not present in areas where there is an expectation of privacy.

### access control badges

Access control badges provide photo and role identification, library privileges, and electronic access to locked and alarmed areas. University policy requires that students, staff, and faculty wear badges visibly (between neck and waist) while on campus. Displaying the badge lets other students know that you are a student, faculty or staff member.

Temporary badges are not issued in lieu of forgotten or lost access control badges. Building/program administrators approve student access to the buildings and areas needed for their particular course of study or research, as well as to the student computer centers, study areas, and the student center and student lounges.

You are required to keep your access control badge secured and immediately report a lost or stolen badge to the Security Badging Office (4-0399) or to the police (4-4444). Policy prohibits you from lending or borrowing badges, admitting unauthorized personnel, or otherwise gaining or granting unauthorized access to campus facilities.

Do not hold/prop open card-controlled doors or other secured doors, as this will initiate alarms to the Police Department. Misuse or abuse may result in adverse administrative action or denial of card access privileges.

Badges are the property of the University and must be returned prior to graduation or separation. You may not cut, bend, or punch holes in your badge, nor expose it to heat, since this will break internal wiring and disable it for access. Badges are printed on both sides so that identifiable information is always visible. Do not place cards or other materials in the badge carrier to obstruct the card information. Lost or abused cards may result in a \$14 replacement charge. You do not need to display your RTD card and it should not be carried against your university access control card as misreads or denial of access may result.

### obtaining badges

The schools' respective administrators schedule students for badging during registration or orientation. Each student must present either a driver's license or government-issued ID (each non-citizen must present a current and valid passport) before the badge will be issued. Please note that the last name on the identification must match the name used to register with the University. The badging staff will ask for any academic or professional credentials you may have to add as post-nominals to your name. RTD badges will be issued at the same time at the Security Badging Office.

### using badges for card access

Card readers are located adjacent to card access-controlled doors.

Card readers are rectangular dark gray or black panels, which are approximately 1" in depth and 2" X 4" in height and width. To unlock a card-reader door, pass the badge slowly across the front of the card reader within a few inches of its surface. If the reader recognized that your card grants access to the door, a beep will sound and a green light will illuminate. The system then unlocks the door. If the door has a door strike, you may hear a click. You will not hear a sound for magnetic locks.

At this point, you will have about five seconds to open the door manually at a hinged door or approach an automatic door. If using an automatic door opener, first present your card to the card reader and then press the door opener.

Please report malfunctions to the Electronic Security Office (4-0014), providing your name and telephone numbers, the reader at which you had difficulty, the date and time of occurrence, and whether the card reader beeped. If you are having problems with your badge, please stop at the Security Badging Office for assistance (Fitzsimons building, Room N1207). For after-hours assistance, please contact University Police (4-4444). After verifying your access privileges for after-hours access to the area, the police dispatcher will send assistance to your location.

### CONTACT INFORMATION

Security Badging Office:

Phone (303) 724-0399

Fax (303) 724-1352

Location: Anschutz Medical Campus - Fitzsimons Building (Q20), Room N1207 (between Student Lounge and Post Office)

Email: [SecurityBadgeOffice@ucdenver.edu](mailto:SecurityBadgeOffice@ucdenver.edu) or

[Ray.Mensah@cuanschutz.edu](mailto:Ray.Mensah@cuanschutz.edu) (Manager)

Web: <https://www.cuanschutz.edu/police/divisions/electronic-security/badging-office> (<https://www.cuanschutz.edu/police/divisions/electronic-security/badging-office/>)

Electronic Security Division, University Police Department:

Phone (303) 724-0014

Fax (303) 724-0718

Location: Anschutz Medical Campus - Building 407 (U09), University Police Building

## Student Outreach and Support Office

At CU Anschutz, we engage in a culture of care and strive to maintain the well-being of the campus community. We collaborate with all of the schools and colleges to ensure students have access to resources that help them navigate challenging experiences. Functions include:

- Create access to resources for students to maintain their safety, health, and well-being
- Develop an environment where everyone understands their responsibility of noticing the well-being of those around them
- Consult and train on supporting students in navigating challenging situations
- Manage the Case Management referral system
- Manage the Medical Leave of Absence and Fit to Return process
- Use a case management framework for proactive and reactive support
- Convene the CARE Team

Location: Education 2 North, 3rd Floor Student Services Suite

Phone: 303-724-2866

Website: <https://www.cuanschutz.edu/student/support/case-management> (<https://www.cuanschutz.edu/student/support/>)

## Veteran & Military Student Services

The Office of Veteran & Military Student Services (VMSS) is the initial contact point for military-connected students attending CU Denver and the CU Anschutz Medical Campus. The main priority of the office is to verify U.S. Department of Veterans Affairs education benefit certification for eligible students, ensuring that each student meets the Veterans Administration requirements for attendance, course load, content, as well as all other regulations necessary to receive educational benefit payments. This office assists students with filling out Veteran Affairs paperwork and in solving problems associated with the receipt of Veteran Affairs related educational benefits. The VMSS provides student mentoring, transition assistance into higher education, mental health services that are specific to the military and transition issues, and career preparation through the Boots to Suits Program. The office also serves as a liaison to numerous Veteran community resources. In addition, the VMSS mission is to improve and enrich the educational experience of our current and former military-related students through advocacy, community, as well as appropriate and responsive services.

### MILITARY SERVICE AND RESIDENCY

Active-duty members of the armed forces of the United States and Canada on permanent duty stationed in Colorado and their dependents (as defined by military regulations) are eligible for in-state status, regardless of domicile or length of residence in Colorado. The military member must have reported to a duty station in Colorado, as certified by their military command, by the first day of class of the applicable academic term.

If the student is here on Active Duty orders:

- Submit copy of orders stationing student in Colorado
- Submit Certificate of Eligibility (COE) - (If using benefits)
- Student's address in their UCD Portal must reflect the students physical CO address

Education Building 2, North

3120 East 19th Ave., P28-3207

Aurora, CO 80045

<https://www.cuanschutz.edu/veterans> (<https://www.cuanschutz.edu/veterans/>)

303-724-9649 | [VMSS@ucdenver.edu](mailto:VMSS@ucdenver.edu) ([VMSS@ucdenver.edu](mailto:VMSS@ucdenver.edu)) | Email for an Appt.

Remote Office Hours

Monday through Friday, 8:00 a.m. - 5:00 p.m.

## Campus Safety University Police

**emergency contact numbers - 911 from any campus phone and (303) 724-4444 from any cell phone**

12454 E 19th Place, Building 407

Aurora, CO 80045

### Phone Numbers

303-724-2000 Police Department Main Number

303-724-4999 Emergency Management or [emergencymanagement@cuanschutz.edu](mailto:emergencymanagement@cuanschutz.edu)

303-724-0800 Compliment/Complaint Line

303-724-0399 Security Badging Office or [security.badgeoffice@ucdenver.edu](mailto:security.badgeoffice@ucdenver.edu)

## How to Report a Crime

Under Colorado Law, "It is the duty of every person who has reasonable grounds to believe that a crime has been committed to report promptly the suspected crime to law enforcement authorities." C.R.S. 18-8-115

When on the CU Anschutz Medical Campus, crimes should be reported to the University Police Department. Crime reports can be made at any time. University Police services are available 24 hours a day, seven days a week. Priority is given to reports of incidents that threaten the life or safety of people, the security of property and the peace of the campus community. For immediate, direct access call 911 from any campus phone for emergencies. Cell phones and off-campus calls dial (303) 724-4444.

Call the University Police Department if:

- You witness someone committing a crime
- You need to report an old crime
- You see fire or smell smoke
- You think you observe a drunken driver
- You have knowledge of a chemical spill
- Someone is injured or ill
- You see anyone or anything suspicious

## Anonymous and Confidential

The University Police Department maintains an anonymous compliment/complaint phone line. Information left on this voice messaging system will be investigated and acted upon as the information provided allows.

The Chief of Police/designee reviews the messages approximately 1-2 times per week. To leave a message call (303) 724-0800.

To contact the University Police Department by email for a response in 1-2 business days, send to [university.police@ucdenver.edu](mailto:university.police@ucdenver.edu).

If you have a concern that you want to share you can also report it to Case Management.

Ethics Line: (800) 677-5590 or [https://secure.ethicspoint.com/domain/en/default\\_reporter.asp](https://secure.ethicspoint.com/domain/en/default_reporter.asp) - The University's Ethics Hotline allows individuals to anonymously report concerns involving a possible violation of law, regulation or policy. All university employees who act in good faith in reporting known or suspected violations of law or university policy are protected from retaliation.

Crimes reported to these sources will assist the university in keeping accurate records regarding the number of incidents involving students, determine where there is a pattern of crime and alert the campus community to any potential danger. Reports filed in this manner are counted and disclosed in the annual crime statistics for the university; however, no identifying information is reported by these sources.

## Blue Light Poles

There are emergency "Blue Light" call stations located in or near parking areas and on pedestrian pathways. These emergency call stations may be used to report crimes in progress, suspicious persons, medical emergencies, or to request personal safety assistance. Pressing the call button on the emergency call station initiates a direct call to the University Police Emergency Communications Center.

Activation of the phone line also activates the blue light strobe to help police locate you more quickly. These phones may be used in emergencies or to request other assistance. Many of these "Blue Light Poles" are also Wi-Fi hot spots. Students, faculty and staff are asked to take a moment when navigating the campus, to note the location of the "Blue Light" call stations.

## Red Phones

"Red Phones" are on hallway walls, usually near restrooms and inside elevators within the buildings on the CU Anschutz Medical Campus. Dial 911 from these phones for emergency police response.

On the CU Anschutz Medical Campus, emergency call boxes are located in elevators in each building and at the entrances of most buildings.

## Campus Phones

Campus phones may also be located in yellow boxes and in other locations. These phones (to include the red phones) may be used to make local calls.

## Emergency Notification System

Communication plays a critical role before, during, and after any emergency or disaster. The University of Colorado Anschutz Medical Campus Emergency Notification System provides campus emergency alerts via text and or e-mail when conditions develop on or near the Anschutz Medical Campus, which pose an imminent threat of danger to the Campus Community. Examples may include:

- Physical plant issues (e.g., natural gas leak, etc.)
- Inclement weather closures or delays
- Campus safety threats (e.g., robbery, active harmer, bomb threat, etc.)
- Hazmat situations

**Email:** All University of Colorado Denver | Anschutz Medical Campus students, faculty and staff are automatically registered to receive emergency notifications to the University-issued email address. *You may not opt out of this.*

**Desktop "Pop-up":** University-owned desktop/laptop/tablets connected to the University domain will receive a screen "pop-up" alert.

**Text:** Students, faculty and staff may register their personal cell phone number to receive emergency notifications by text through the CU Denver portal. In an effort to keep information current during an evolving situation, email and text emergency notifications will be brief and will direct the reader to the University of Colorado Denver | Anschutz Medical Campus toll-free emergency information line at (877) 463-6070 or online at [www.ucdenver.edu/alerts](http://www.ucdenver.edu/alerts).

**Social media:** Emergency notifications also post to CU Police Department and Emergency Management Division social media pages.

- Facebook: CU Denver Police and CU Denver Emergency Management
- Twitter: @CUDen\_AMC\_PD and @CUDenverEMD

## Police Services

- SafeRide Shuttle Service: University Police will gladly provide escorts to any of the parking lots and nearby streets, within a specified radius of the campus, upon request, free of charge. This service operates during the hours of darkness.
- Motorist Assistance: University Police personnel can assist with jump starting your vehicle. This service is free and is available 24 hours a day. We do not provide an unlocking service, but have referral information available.
- Lost and Found: Most items of clothing, personal keys, and items considered to be of little monetary value are turned in to Facilities Management. The Facilities Management Dispatch can be reached via phone at 303-724-1777. Items of greater value (e.g. cell phone, computer, wallet, access badges/ID badge) are processed by University Police, who can be contacted at 303-724-4444.
- Fingerprinting: The state selected two vendors to provide sites, including mobile locations, across Colorado where applicants can obtain their electronic fingerprints. The fingerprints will be submitted directly to the Colorado Bureau of Investigation (CBI) for processing. Please visit the University Police website (<https://www.cuanschutz.edu/police/services/fingerprinting/>) for current vendor information.
- Bicycle Registration: Protect your investment. Lock your bike with a good U-type lock. Don't forget to register your bike with University Police online at [cuanschutz.edu/police/services/bicycle-registration](https://www.cuanschutz.edu/police/services/bicycle-registration/) (<https://www.cuanschutz.edu/police/services/bicycle-registration/>). Report suspicious activity near bike racks.

## Police Reports

The University Police Department complies with the Colorado Open Records Act (CORA) CRS 24-72-201 to 206, and the Colorado Criminal Justice Records Act (CCJRA) CRS 24-72-301 to 309, when releasing records. Inspection or release of certain records may be denied per CRS 24-72-305.

By submitting a request online, you affirm the criminal justice records obtained from the University Police Department will not be used for the direct solicitation of business for pecuniary gain.

### CRS 24-72-305.5 (1)

Records of official actions and criminal justice records and the names, addresses, telephone numbers, and other information in such records shall not be used by any person for the purpose of soliciting business for pecuniary gain. The official custodian shall deny any person access to records of official actions and criminal

justice records unless such person signs a statement which affirms that such records shall not be used for the direct solicitation of business for pecuniary gain.

- Copies of University of Colorado Denver Police Department reports (e.g. for insurance purposes) are available through University Police Department Records. There is a charge of \$7 (up to 10 pages; \$.25 for additional pages more than ten) for this service. Report request forms are available at [cuanschutz.edu/police/services/request-a-copy-of-a-police-report](https://www.cuanschutz.edu/police/services/request-a-copy-of-a-police-report) (<https://www.cuanschutz.edu/police/services/request-a-copy-of-a-police-report/>).
- For more information, call (303) 724-0261

## The Clery Act

The Jean Clery Disclosure of Campus Security Policy was signed into law in 1990. The Federal law, commonly known as the "Clery Act" required institutions of higher learning to disclose certain timely and annual information about campus crime and security policies. All post-secondary public and private institutions participating in Federal student aid programs must adhere to these regulations.

The Clery Act (<https://www.cuanschutz.edu/police/clery-act/>) was named after Jeanne Clery who was raped and murdered in her dorm room by a fellow students on April 5, 1986. Her parents championed the act in her memory. In 2013, the Clery Act was expanded to include requirements concerning sexual assault, domestic violence, dating violence and stalking. In compliance with this act, the University Police Department publishes an Annual Security Report.

The university of Colorado's Annual Security and Annual Fire Safety Report includes statistics for the previous three years for reported crimes that occurred on campus, in certain off-campus buildings owned or controlled by the University, and on public property within or immediately adjacent to and accessible from the campus.

The report also includes institutional policies concerning campus security, such as those concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assault, and other matters. This report, and all Clery Resources, may be viewed online at [cuanschutz.edu/police/clery-act](https://www.cuanschutz.edu/police/clery-act) (<https://www.cuanschutz.edu/police/clery-act/>).

## Electronic Security

All CU Students, faculty, staff, affiliates, long-term and contractors are required to display their Access Control Badge while on the campus. The Security Badging Office is located in the Fitzsimons Building. The Access Control Badge is programmed to allow admittance to secured areas to which you have been authorized. All access is recorded by name for accountability. Do not share your access privileges with others. Please contact the Electronic Security Division for more information.

The Electronic Security Division is responsible for equipping all exterior doors to all buildings with access control devices and/or door position monitoring; all buildings have, by default, at least one card-controlled door in its secure perimeter. The Division also installs intrusion alarms, panic devices, CCTV monitoring and research equipment monitoring (i.e. freezers, incubators) for research laboratories and other restricted zones adjacent to public areas within the same building.

Please observe the following electronic security rules:

- Doors may not be propped open
- All electronic locking hardware should not be manipulated in a way to circumvent security

- Children and unescorted visitors must not be admitted entrance to secure and/or restricted lab areas

The University's electronic security system is an important element in providing a safe and secure environment for education, research and patient care. Failure to comply with alarm or access requirements, or any attempt to circumvent the electronic security system or to violate the access control policy will not be tolerated. The Electronic Security Division has tracking software that records access to doors. When the cause of the alarm can be attributed to an intentional act designed to circumvent the intent of the security system, the Chief of Police will be notified. In the event mitigating factors are not provided that justify, in the opinion of the Chief of Police, the security compromise, a fee can be levied against the appropriate school for each violation. These fees are to offset the cost of dispatching the alarm, initial police response and investigation, monitoring and resetting of the intentional security violation, follow up by the Chief of Police and the need to track the violation.

In the event the security system has sustained damage from such an act, the cost of repair also will be charged to the school/college or program.

Electronic Security Division: (303) 724-0014

Security Badging Office: (303) 724-0399

## Accreditations and Memberships

The University of Colorado Denver | Anschutz Medical Campus is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

### Higher Learning Commission

230 South LaSalle Street

Suite 7-500

Chicago, IL 60604

[info@hlcommission.org](mailto:info@hlcommission.org)

Phone: 800-621-7440/312.263.0456

Web: <https://www.hlcommission.org/component/directory/?Action=ShowBasic&Itemid=&instid=1040>  
(<https://www.hlcommission.org/component/directory/?Action=ShowBasic&Itemid=&instid=1040>)

### Anesthesiologist Assistant Accreditation

The University of Colorado Anesthesiologist Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs (<https://caahep.org/>) upon the recommendation of the Accreditation Review Committee for the Anesthesiologist Assistant (ARC-AA).

### Commission on Accreditation of Allied Health Education Programs

25400 U.S. Highway 19 North, Suite 158

Clearwater, FL 33763

Phone: 727-210-2350

[www.caahep.org](https://www.caahep.org/) (<https://www.caahep.org/>)

### CHA/PA Physician Assistant Program Accreditation

The Accreditation Review Commission on Education for the Physician Assistant (<http://www.arc-pa.org/accreditation-history-university-of-colorado/>)(ARC-PA) has granted Accreditation-Continued status to the Physician Assistant Program sponsored by the University of Colorado. Accreditation-Continued is an accreditation status granted



when a currently accredited program is in compliance with the ARC-PA Standards.

Accreditation remains in effect until the program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the Standards. The approximate date for the next validation review of the program by the ARC-PA will be in 2026. The review date is contingent upon continued compliance with the Accreditation Standards and ARC-PA policy.

## College of Nursing Accreditation

The Bachelor of Science in Nursing degree program, Master of Science in Nursing degree program, Doctor of Nursing Practice program, and post-graduate APRN Certificate program at the University of Colorado College of Nursing are accredited by the Commission on Collegiate Nursing Education.

### Commission on Collegiate Nursing Education

655 K Street, NW, Suite 750  
Washington, DC 20001  
202-887-6791  
<http://www.ccneaccreditation.org>

### Accreditation Commission for Midwifery Education

8403 Colesville Road, Suite 1550  
Silver Spring, MD 20910  
(240) 485-1802  
<https://www.midwife.org/acme> (<https://www.midwife.org/acme/>)

The College of Nursing maintains the following memberships:

- American Academy of Nursing
- American Association of Colleges of Nursing
- National Student Nurses Association
- Colorado Nurses Association
- National League for Nursing
- Sigma Theta Tau International

## Colorado School of Public Health Accreditation

The Colorado School of Public Health is the first and only accredited school of public health in the Rocky Mountain West. Accredited by the Council on Education for Public Health (CEPH), the Colorado School of Public Health strives to train and support the public health workforce in Colorado and regionally.

In fulfillment of our mission and vision, our accreditation documentation lays out the goals and measures by which we and the accreditation entity measure our success in providing public health education and research throughout Colorado and the greater Rocky Mountain West.

Opened as a collaborative school in 2008, CEPH first granted school-wide accreditation in October 2010. We were re-accredited in 2016 (see documents below) and are accredited through July 1, 2024. Requests for additional documentation or questions concerning documentation should be submitted to the Colorado School of Public Health via email at [Colorado.SPH@cuanschutz.edu](mailto:Colorado.SPH@cuanschutz.edu) ([colorado.sph@cuanschutz.edu](mailto:colorado.sph@cuanschutz.edu)).

## Accreditation reports

- Self-Study Report Prepared for the Council on Education for Public Health August 2015 ([https://coloradosph.cuanschutz.edu/docs/librariesprovider151/default-document-library/coloradosph-final-self-study-report-august-2015.pdf?sfvrsn=ea6c1ab9\\_2](https://coloradosph.cuanschutz.edu/docs/librariesprovider151/default-document-library/coloradosph-final-self-study-report-august-2015.pdf?sfvrsn=ea6c1ab9_2))
- CEPH Final Report June 2016 ([https://coloradosph.cuanschutz.edu/docs/librariesprovider151/default-document-library/ceph-final-report-june-2016.pdf?sfvrsn=30681ab9\\_2](https://coloradosph.cuanschutz.edu/docs/librariesprovider151/default-document-library/ceph-final-report-june-2016.pdf?sfvrsn=30681ab9_2))

## About CEPH

CEPH is an independent agency recognized by the U.S. Department of Education to accredit schools of public health and public health programs outside schools of public health. Questions and formal comments concerning the Colorado School of Public Health accreditation process should be directed to:

Council on Education for Public Health (<http://www.ceph.org/>)  
800 Eye Street, NW, Suite 202  
Washington, DC 20001-3710  
Phone: 202.789.1050  
Fax: 202.789.1895

## Graduate School Accreditation

The University of Colorado Anschutz Graduate School is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

### HIGHER LEARNING COMMISSION

230 South LaSalle Street  
Suite 7-500  
Chicago, IL 60604  
[info@hlcommission.org](mailto:info@hlcommission.org)  
Phone: 800-621-7440/312.263.0456  
Web: <https://www.hlcommission.org/component/directory/?Action=ShowBasic&Itemid=&instid=1040>  
(<https://www.hlcommission.org/component/directory/?Action=ShowBasic&Itemid=&instid=1040>)

## Physical Therapy Program Accreditation

The Physical Therapy Program at University of Colorado is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, Virginia 22305-3085; 703-706-3245; [accreditation@apta.org](mailto:accreditation@apta.org); <http://www.capteonline.org> (<http://www.capteonline.org/>).

If needing to contact the program/institution directly, please call 303-724-2878 or e-mail [vonelle.kelly@cuanschutz.edu](mailto:vonelle.kelly@cuanschutz.edu)

On November 3, 2020, the Commission on Accreditation in Physical Therapy Education (CAPTE) of the American Physical Therapy Association (APTA) reaffirmed the accreditation status based upon compliance with all of the evaluative criteria. The accreditation status remains in effect for the full 10 year period until 2030 at which time the accreditation status will undergo a self-study report and on-site review.

The University of Colorado Physical Therapy Program is a member of the American Council of Academic Physical Therapy (ACAPT) which supports academic institutions to strive for excellence in physical therapist education. We encourage faculty, clinical educators, academic



administrators and students interested in pursuing teaching to check out [acapt.org](http://acapt.org) (<http://acapt.org>).

## School of Dental Medicine Accreditation

The University of Colorado School of Dental Medicine is accredited by the Commission on Dental Accreditation (CODA).

### Commission on Dental Accreditation

211 East Chicago Avenue  
Chicago, Illinois 60611  
800.232.6108  
[coda.ada.org/en](https://coda.ada.org/en/) (<https://coda.ada.org/en/>)

## School of Medicine Accreditation

The University of Colorado School of Medicine is accredited by the Liaison Committee on Medical Education (LCME).

LCME: <https://lcme.org/directory/accredited-u-s-programs/>

LCME accreditation is a voluntary, peer-reviewed process of quality assurance that determines whether the medical education program meets established standards. This process also fosters institutional and programmatic improvement. To achieve and maintain accreditation, a medical education program leading to the MD degree in the United States and Canada must meet the LCME accreditation standards contained in the LCME document Functions and Structure of a Medical School (<https://lcme.org/publications/#Standards>). Programs are required to demonstrate that their graduates exhibit general professional competencies that are appropriate for entry to the next stage of their training and that serve as the foundation for lifelong learning and proficient medical care. While recognizing the existence and appropriateness of diverse institutional missions and educational objectives, the LCME subscribes to the proposition that local circumstances do not justify accreditation of a substandard program of medical education leading to the MD degree.

For medical education programs located in the United States, accreditation by the LCME establishes eligibility for selected federal grants and programs, including Title VII funding administered by the U.S. Public Health Service. Most state boards of licensure require that U.S. medical schools granting the MD degree be accredited by the LCME as a condition for licensure of their graduates. Eligibility of U.S. students in MD-granting schools to take the United States Medical Licensing Examination (USMLE (<http://www.usmle.org/>)) requires LCME accreditation of their school. Graduates of LCME-accredited schools are eligible for residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME (<http://www.acgme.org/>)).

The University of Colorado School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The University of Colorado School of Medicine is pleased to announce Accreditation with Commendation by the Accreditation Council for Continuing Medical Education (ACCME). Our term expires July 31, 2021.

ACCME accreditation seeks to assure both physicians and the public that continuing medical education activities provided by the University of Colorado School of Medicine meet the high standards of the Essential Areas, Elements and Policies for Accreditation as specified by the ACCME.

The ACCME rigorously evaluates the overall continuing medical education programs of institutions according to standards adopted by all seven

sponsoring organizations of the ACCME. These are: the American Board of Medical Specialties; the American Hospital Association; the American Medical Association; the Association for Hospital Medical Education; the Association of American Medical Colleges; the Council of Medical Specialty Societies; and the Federation of State Medical Boards of the U.S., Inc.

The University of Colorado School of Medicine is pleased to join an elite group of organizations in the United States that have been awarded this 6-year accreditation. The Office of Continuing Medical Education and Professional Development offers a full range of continuing medical education courses, printed and other forms of enduring materials, rural outreach, and web-based education to physicians and other healthcare professionals at the University of Colorado, within the State of Colorado, and nationally through partnerships with organizations throughout the U.S. and worldwide.

## Skaggs School of Pharmacy & Pharmaceutical Sciences Accreditation

The Skaggs School of Pharmacy and Pharmaceutical Sciences was fully re-accredited in 2016 for eight years by the Accreditation Council for Pharmacy Education (ACPE), the national agency for the accreditation of professional degree programs in pharmacy and providers of continuing pharmacy education.

### What is Accreditation?

Accreditation is a voluntary, non-governmental process of external quality review used by higher education to inspect colleges, universities and higher education programs for quality assurance and improvement.

Aside from the promise of overall quality educational opportunities, an institution's accreditation status provides students with the ability to qualify for federal funding and financial aid and to transfer credits to other programs that are also accredited. Accreditation can be required for professional licensure and is extremely appealing to employers.

Like all schools of pharmacy in the U.S., the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences is accredited by the Accreditation Council for Pharmacy Education (ACPE), a national agency for the accreditation of professional degree programs in pharmacy and providers of continuing pharmacy education. ACPE was established in 1932 for the accreditation of pre-service education, and in 1975 its scope of activity was broadened to include accreditation of providers of continuing pharmacy education.

Once accredited, a school or college undergoes periodic renewal reviews. Our school recently underwent a renewal review, spearheaded by Associate Dean for Academic Affairs and Associate Professor David Thompson, PhD, and received a full eight year accreditation by ACPE – the maximum level that a school can attain.

### Obtaining Accreditation

The process of accreditation is quite involved requiring the school to complete several steps in the accreditation process including:

- Preparation and self-examination
- Written self-study report of accomplishments
- Site visit by a team comprised of peer reviewers, and a representative from the accrediting body
- Judgment by the accrediting body
- Continuous review

By accepting accreditation status, a school agrees to uphold the quality standards set by the accreditation organization and agrees to periodically submit to accreditation renewal review.

### More about ACPE

ACPE is an autonomous and independent agency whose board of directors is derived through the American Association of Colleges of Pharmacy, the American Pharmacists Association, the National Association of Boards of Pharmacy (three appointments each), and the American Council on Education (one appointment).

Read an abbreviated short version of our accreditation self-study report ([https://pharmacy.cuanschutz.edu/docs/librariesprovider195/default-document-library/cu\\_sspps\\_standards\\_all\\_short.pdf?sfvrsn=553dc5b9\\_4](https://pharmacy.cuanschutz.edu/docs/librariesprovider195/default-document-library/cu_sspps_standards_all_short.pdf?sfvrsn=553dc5b9_4)). To learn more about our school's accreditation status or about the accreditation process, contact ACPE (<https://www.acpe-accredit.org/>).

Accreditation Council for Pharmacy Education: <https://www.acpe-accredit.org/faq-item/University-of-Colorado-Anschutz-Medical-Campus-Skaggs-School-of-Pharmacy-and-Pharmaceutical-Sciences-PharmD/>

## University Leadership

### Chancellor

**Donald M. Elliman, Jr.**

Chancellor, University of Colorado Anschutz Medical Campus  
Read Bio (<https://www.cuanschutz.edu/about/leadership/chancellor/#ac-chancellor-ellimans-biography-0>)

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### University Leadership

**Roderick Nairn**

Executive Vice Chancellor for Academic and Student Affairs  
CU Denver | Anschutz

**Terri C. Carrothers**

Executive Vice Chancellor for Administration & Finance and Chief Financial Officer

**John J. Reilly, Jr.**

Vice Chancellor of Health Affairs  
CU Denver | Anschutz

**Scott Arthur**

Vice Chancellor of Advancement

**Steve Zweck-Bronner**

Vice Chancellor & Senior Managing Associate University Counsel  
CU System

**Thomas Flaig**

Vice Chancellor for Research  
CU Denver | Anschutz

**Kathy Green**

Vice Chancellor of Marketing and Communications

**Regina Richards**

Vice Chancellor of Diversity, Equity, Inclusion and Community Engagement

### Chancellor Initiatives

**Laura Borgelt**

Associate Vice Chancellor of Strategic Initiatives

**Kim Muller**

Executive Director of CU Innovations

**Steve VanNurden**

Associate Vice Chancellor for Biotechnology

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### CU Anschutz Medical Campus Deans

**Ralph Altieri**

Dean of the Skaggs School of Pharmacy and Pharmaceutical Sciences

**David Engelke**

Dean of the Graduate School

**Denise Kassebaum**

Dean of the School of Dental Medicine

**Elias Provencio-Vasquez**

Dean of the College of Nursing

**John J. Reilly, Jr.**

Dean of the School of Medicine

**Jonathan Samet**

Dean of the Colorado School of Public Health

## University of Colorado System

The University of Colorado is a system of four campuses located in Boulder, Colorado Springs, Denver and Aurora. With combined total enrollments of over 60,000 students, the University of Colorado system consistently ranks in the top 15 among public universities and colleges in overall research expenditures and seventh among public universities in federally funded research. Awards for research within the system total more than \$920 million, with funding provided by federal agencies, appropriations from the state of Colorado and private foundations and donors.

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## University Leadership

### President

**Todd Saliman**

President, CU System

### Chancellors

**Phillip P. DiStefano**

Chancellor, CU Boulder

**Venkat Reddy**

Chancellor, UCCS

**Michelle A. Marks**

Chancellor, CU Denver

**Donald M. Elliman Jr.**

Chancellor, CU Anschutz Medical Campus

### President's Executive Team

**Annie Bacary**

Associate Vice President and Advancement Administration Office

**Leonard Dinegar**

Senior Vice President and Chief of Staff

**Antonio Farias**

Special Advisor to the President for Diversity, Equity, and Inclusion

**Jack Finlaw**

President and Chief Executive Officer University of Colorado Foundation

**Jeremy Hueth**

Vice President, University Counsel, and Secretary to the Board of Regents

**Michael Lightner**

Vice President for Academic Affairs

**Chad Marturano**

Acting Chief Financial Officer

**Felicity O'Herron**

Chief Human Resources Officer and Associate Vice President of Employee Service

**Emily Osan**

Diversity, Equity, and Inclusion Specialist

**Heather Retzko**

Senior Associate Vice President of State Relations

**Tony Salazar**

Assistant Vice President of Engagement

**Michael Sandler**

Vice President for Communication

**Valerie Simons**

Interim Chief Compliance Officer & Title IX Coordinator

*To learn more about the Office of the President and University Leadership, please visit their website (<https://president.cu.edu/>).*

## CU Board of Regents

**John "Jack" Kroll, Chair**

District 1

*term expires 2023*

**Sue Sharkey, Vice Chair**

District 4

*term expires 2023*

**Nolbert D. Chavez**

District 7

*term expires 2027*

**Glen Gallegos**

District 3

*term expires 2025*

**Heidi Ganahl**

At Large

*term expires 2023*

**Ken Montera**

District 5

*Current term Nov. 2022*

**Callie Rennison**

District 2

*term expires 2027*

**Lesley Smith**

At Large

*term expires 2025*

**Ilana Dubin Spiegel**

District 6

*term expires 2027*

*To learn more about the Board of Regents, please visit their website (<https://regents.cu.edu/>).*

## Campus Resources

### Strauss Health Sciences Library Location & Hours

**Physical Location**

(Immediately north of historic Fitzsimons Bldg):

Strauss Health Sciences Library

12950 East Montview Boulevard

Aurora, CO 80045

Phone: (303) 724-2152

Website: <https://library.cuanschutz.edu/>

**Mailing Address**

Strauss Health Sciences Library

Mail Stop A003

12950 E. Montview Boulevard

Aurora, CO 80045

**Hours of Operation**

(Please visit the library website (<https://library.cuanschutz.edu/>) for the most current information.)

## Library Perks & Amenities

The Strauss Health Sciences Library strives to provide our patronage with perks and amenities in the library to make your time here as comfortable as possible. Below you will find a list of perks and amenities available.

**Study Zone (SZ)** - The Study Zone is located on the second floor quiet area of the library and whisper quiet is the expectation in this area of the library. Users must have an Anschutz campus ID badge to enter and use the Study Zone.

**Nap Pods (NP)** - Nap Pods are available in the nap pod room in The Study Zone located on the second floor of the library. They are on a first come, first served basis. The nap pod room is a silent space for napping.

**The Lounge (SL)** - The Lounge at the Strauss Library is located just outside the front entrance of the library. There are two badge controlled entrances, users must have an Anschutz campus ID badge to enter and use the space. The Lounge is accessible 24/7 and provides a space for students, faculty, and staff to study, lounge, or grab a coffee and snack. A large fridge, along with two microwaves, a Keurig coffee machine, and a variety of vending machines with coffee and snacks are available.

**Kitchens (K)** - There are 3 kitchens located throughout the library. Kitchens are located on the first floor in the Lounge, on the second

floor in the Study Zone, and on the north end of the third floor. They provide students, staff, and faculty with fridges, Keurig coffee machines, microwaves, and sinks.

**Lactation Space (LS)** - Strauss Library has a lactation space available for those who may need it. This space is located on the third floor in the Administration office.

**Quiet Zones (QZ)** - The library has three zones of differing levels of quiet available on the second floor. For more information about these quiet zones, please see the 2nd Floor Quiet Policy & Zones.

**Record Now Studio (RN)** - The Record Now: DIY Video Studio is a self-service one-button production studio that provides space for presentation recording. The studio has the capability for green or blue screen recording, touch screen display, PowerPoint presentations and more.

**Wellness Workstations** - The library has wellness workstations consisting of Bicycle Desks (BW), Treadmill Desks (TM), and Standing Desks. These workstations are located throughout the library on all three floors.

**Charging Station (CS)** - The library has a device charging station available in the South Commons on the first floor.

## Map of Library

Please visit the library website (<https://library.cuanschutz.edu/about/perks-amenities/>) for the most current information.

## Partners in the Library

### Writing Center

#### HOURS

By appointment only. Click here to make an appointment with the Writing Center.

Writing Center website (<https://clas.ucdenver.edu/writing-center/>)

Phone: 303-724-4143

Location: 1st floor of the library, Room 1204

Note: CU Anschutz students also have access to the Writing Center at our Denver campus and via our online platforms.

### PASCAL

PASCAL, the Preservation and Access Service Center for Colorado Academic Libraries, is the state-of-the-art high density remote library storage facility located on the CU Anschutz Medical Campus.

Check the PASCAL website for PASCAL location & hours (<http://pascal.ucdenver.edu/contact/hours.php>).

Phone: 303-724-1114

### Inworks

#### HOURS

By appointment only, email: [inworks@ucdenver.edu](mailto:inworks@ucdenver.edu) to make an appointment

Inworks Anschutz website (<https://inworks.ucdenver.edu/w/>)

Phone: 303-724-4120

Location: 2nd floor of the library, room 2100

Connect with and contact Inworks at Anschutz – online form (<https://inworks.ucdenver.edu/w/contact-cu-anschutz/>)

### Office of Disability, Access, and Inclusion (DAI)

#### HOURS

By appointment only.

Phone: 303-724-5640

Location: 1st floor of the library, north end near Teaching Labs - Room 1409A1 (View the Library's Floor Plan (<https://library.cuanschutz.edu/about/perks-amenities/>))

Connect with and contact DAI – online form ([https://ucdenverdata.formstack.com/forms/drs\\_resource\\_navigation/](https://ucdenverdata.formstack.com/forms/drs_resource_navigation/))

## On-Campus Recreation

### Intramurals

The Office of Student Engagement offers certain intramurals on campus as one day tournaments or weekly leagues. If you are interested please email [katelyn.blanas@cuanschutz.edu](mailto:katelyn.blanas@cuanschutz.edu). Our current offerings include:

#### Indoor

- Ping Pong

#### Outdoor

- Spike ball
- Volleyball
- Badminton
- Cornhole / Bags

### Equipment Check-Out

The Office of Student Affairs offers certain recreational equipment that can be checked out for use on or off campus. You may also reserve equipment for class or student organization events. Our current equipment offerings include:

- Frisbees
- Soccer Balls
- Badminton
- Spikeball
- Picnic Blankets
- Volleyballs and Nets
- Footballs
- Movie night set up
- Speaker with mic
- 100 Cup dispensers

### Outdoor Events on Campus

Students may hold events on campus that are related to CU Anschutz campus student organizations or class activities. Check with your program student affairs administrator for more information.

## Anschutz Health and Wellness Center

The Anschutz Health and Wellness Center at the Anschutz Medical Campus came to life thanks to the Anschutz Foundation and the University of Colorado. These two visionary organizations invested in a state-of-the-art facility, top researchers, scientists and a multi-disciplinary team to create the nation's go-to source of information and programs on wellness. Top researchers work side-by-side with clinicians to develop and deliver wellness programs and work with community interventionists to take these programs beyond the walls of the Center into communities.

### Contact Information

Fitness Center: 303-724-WELL (9355)

Wellness Clinic: 303-724-9030

12348 E Montview Blvd.

Aurora, CO 80045

<https://anschutzwellness.com/>

#### Fitness Center Hours

M-TH: 5am-9pm

FRI: 5am-8pm

S-S: 7am-2pm

## Parking & Transportation Services

A variety of services are offered through the Parking and Transportation Department. These include:

1. issuance of parking permits for staff, students and faculty
2. parking for patients, visitors and other cash customers
3. coordination of special event parking
4. intercampus shuttle service between the Lawrence Street Center Building downtown, National Jewish Health, the Denver VA Hospital and the Anschutz Medical Campus in front of the Fitzsimons Building
5. campus circulator service between buildings on the Anschutz Medical Campus
6. Rail shuttle from campus to the RTD Fitzsimons Rail Station, the RTD R Line train connects passengers to both the A Line and the H Line.
7. RTD Eco Pass for full and part time faculty and staff. For information on the RTD College Pass for students please contact the Student Services Office
8. alternative transportation including the Car2go and Zip Car programs on campus
9. University Police provide an escort service during hours of darkness between a person's vehicle and work location

Phone: 303-724-2555

For information regarding **Transportation, Parking, and other Maps**, please visit the Facilities Management website (<https://www.cuanschutz.edu/offices/facilities-management/transportation-parking-maps/>).

Additionally, a **Virtual Tour** of the CU Anschutz Medical Campus is available through this site (<http://cuanschutz.edu/tour/>).

Click here (<https://www.cuanschutz.edu/about/cu-anschutz-map/>) for an interactive and mobile friendly version of the campus map.

## About the Catalog

This catalog describes policies and programs for the Fall 2022 - Summer 2023 academic year.

This catalog does not constitute a contract with the University of Colorado Anschutz Medical Campus, either expressed or implied, and the University reserves the right at any time to change, delete, or add to any of the provisions at its sole discretion.

Furthermore, the provisions of this catalog are designed by the University to serve as guidelines rather than absolute rules, and exceptions may be made on the basis of particular circumstances.

Students will be held responsible for complying with all requirements and deadlines published in this catalog.

## University Policies

### Alcohol and Drug Policies

The University of Colorado Anschutz Medical Campus is committed to providing an environment in which learning and scholarship can flourish, which includes a drug-free educational environment and drug-free workplace. This policy statement on drugs and alcohol is designed to ensure that the Anschutz Medical Campus complies with the Federal Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendments of 1989. These Acts require the University, as a recipient of federal funds, to take measures to combat the abuse of drugs and alcohol. The continuation of federal financial aid support for students, academic programs, and academic support services programs is based upon compliance with these statutes and their regulations.

The possession or use of illegal drugs, or the abuse of those which may otherwise be legally possessed, seriously affects the University environment, as well as the individual potential of our students and employees. The University enforces state laws and related University policies which prohibit the use and abuse of illegal drugs and alcohol.

The University of Colorado Anschutz Medical Campus prohibits the unlawful manufacture, distribution, dispensation, possession, or use of any controlled substance (illicit drugs of any kind or amount, including marijuana) and the abuse of alcohol by students and employees on University property or as part of any of its activities, as well as providing alcoholic beverages to individuals under 21 or possession or consumption of alcoholic beverages by individuals under 21. This prohibition covers any individual's actions which are part of any University sponsored activities, including those occurring while on University property or in the conduct of University business away from the campus (including officially sanctioned field trips, student-sponsored social activities, club sports travel, recognized student organization activities, professional meetings attended by employees, and institution-sponsored activities abroad).

Pursuant to the State of Colorado Constitution and related laws and regulations, possession and use of marijuana for certain medical conditions, and the possession and use of less than one (1) ounce of marijuana by persons twenty-one years of age or older is legal in limited circumstances. However, the possession and use of marijuana remains prohibited on University property or as part of any University sponsored activities as defined above.

It is a violation of University policy for any member of the faculty, staff, or student body to jeopardize the operation or interest of the Anschutz Medical Campus through the use of alcohol or drugs. Individuals found to be in violation are subject to legal sanctions under local, state, or federal law and to disciplinary action consistent with the Student Code of Conduct (at the Downtown Denver Campus), the Student Honor and Conduct/Ethics/Professionalism Codes (Anschutz Medical Campus). Sanctions to be imposed on employees and students who are found to be in violation of this policy may include requiring satisfactory participation in a substance abuse treatment, counseling, or education program as a condition of continued enrollment and/or employment, suspension or termination of employment, and referral for prosecution.

The University strongly encourages students and employees to voluntarily obtain assistance for dependency or abuse problems before such behavior results in an arrest and/or disciplinary referral, which might result in their separation from the University. Help is available both on campus and within the community for students and employees who are



dependent on, or who abuse the use of alcohol or other drugs. Students at the Anschutz Medical Campus may contact the Student Mental Health Service (303-724-4716) and the Campus Health Center (303-724-6242).

## Alcoholic Beverages at Official Functions

University of Colorado Denver | Anschutz Medical Campus official functions that include the serving of alcohol require the completion of an "Event with Alcohol" form and prior approval by the designated school/college/unit officer (Dean, Associate Vice Chancellor, or higher). Purchase of alcohol for personal consumption at official functions is allowed only if the source of the University funds is (1) gifts restricted for entertainment, donor cultivation, or personnel recruitment purposes and (2) approved by the Deputy Controller.

Sales of alcohol at University events may only be made at licensed establishments. Pooling resources to purchase alcohol constitutes sale of alcohol without a license and is therefore not allowed on University property or at University events.

To ensure proper management of an activity where alcohol is provided at a pre-approved official function, the following rules include but are not limited to:

1. All persons being served alcoholic beverages must be at least 21 years of age and have proper identification for proof of age.
2. An Event Manager will be present and will monitor the alcoholic beverage service area. The Event Manager/Sponsor is a responsible and accountable individual who will be present for the entire event.
3. Food items and non-alcoholic beverages will be available. These items must be available at no cost, in the same general location, and of such a variety as to make them attractive alternatives to the alcoholic beverages being provided.
4. Persons checking ID's will have knowledge of proper identification techniques and are over 21 years of age.
5. Persons dispensing alcohol will monitor individual's consumption and not continue to dispense to persons that show signs of impairment.
6. Alcoholic beverages will not be available for individuals to pour their own. There will be no open or unattended kegs, containers, or bottles.
7. If the event lasts more than two hours, alcohol will not be served during the last hour. For events lasting less than two hours, service will discontinue at least 30 minutes prior to the scheduled end of the event.
8. The entrance/exit access area will be monitored so as not to allow persons to carry in or take alcoholic beverages from the consumption area.
9. Designated drivers or other means of alternate transportation will be available.
10. Campus Police are notified in advance for on-campus events, as applicable.

For a complete listing of University rules for managing an official function with alcohol, please see the following policies or contact the campus Deputy Controller.

Campus Administrative Policy 3050

CU System University Risk Management Page (<https://www.cu.edu/risk/>)

## Email Account

Email is an official means for communication within CU Denver. Therefore, CU Denver has the right to send communications to students/staff/faculty via email and the right to expect that those communications will be received and read in a timely fashion.

## FERPA

FERPA deals specifically with the education records of students, affording them certain rights with respect to those records. For purposes of definition, education records are those records which are:

1. Directly related to a student and
2. Maintained by an institution or a party acting for the institution.

FERPA gives students who reach the age of 18 or who attend a post secondary institution the right to inspect and review their own education records. Furthermore, the right to request amendment of records and to have some control over the disclosure of personally identifiable information from these records, shift from the parent to the students at this time.

FERPA applies to the education records of persons who are or have been in attendance in post secondary institutions, including students in cooperative and correspondence study programs, video conference, satellite, internet or other electronic forms. FERPA does not apply to records of applicants for admission who are denied acceptance or, if accepted, do not attend an institution.

## Notice of Student Rights

Students at the University of Colorado Anschutz Medical Campus (CU Anschutz) have certain rights concerning their education records under the Family Educational Rights and Privacy Act (FERPA). These rights include:

1. The right to inspect and review the student's education records within 45 days of the day that the university receives a request for access. Students should submit to the registrar, dean, head of the academic department or other appropriate official, written requests that identify the record(s) they wish to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of the student's education records that the student believes are inaccurate or misleading. Students may ask the university to amend a record that they believe is inaccurate or misleading. They should write the university official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the university decides not to amend the record as requested by the student, the university will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to consent to disclosure of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One

exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic or research or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the university has contracted (such as an attorney, auditor or collection agent); a person serving on the Board of Regents; or a student serving on an official committee, or assisting another school official in interest if the official needs to review an education record in order to fulfill his or her professional responsibility. Upon request, the university discloses education records without consent to officials of another school, in which a student seeks or intends to enroll.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University of Colorado Denver to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington, DC 20202-5920

FERPA generally requires the University to obtain student consent prior to disclosing their education records or personally identifiable information contained therein. One exception, which permits disclosure without student consent, is information about the student that the University has designated as "directory information." The following items are designated "directory information" and may be released at the discretion of the University of Colorado unless a student files a request to prevent their disclosure:

- name
- address, telephone number, and e-mail address
- dates of attendance
- registration status
- class (i.e. freshman, sophomore, junior, senior)
- major
- awards
- honors
- degrees conferred
- photos

Although these items are designated by CU Anschutz as directory information, only a limited amount of this information is routinely disclosed by CU Denver | Anschutz Medical Campus officials, and the University retains the discretion to refuse to disclose directory information if it believes such disclosure would be an infringement of student privacy rights.

Forms to prevent disclosure of directory information can be obtained at the Registrar's Office in Education II North, or visit the Registrar's website. Questions regarding your rights under FERPA should be directed to the Registrar's Office:

CU Anschutz Medical Campus  
Campus Box A054  
Phone: 303-724-8000  
Fax: 303.724.8060  
Email: Registrar@cuanschutz.edu

## Definition - Education Record

Those records directly related to a student and maintained by the institution or by a party acting for the institution are considered education records. The term "education records" does not include the following:

- Records of instructional, supervisory, administrative, and certain educational information that is in the sole possession of the maker thereof, and are not accessible or revealed to any other individual except a substitute who performs on a temporary basis (as defined in the institutional personnel policy) the duties of the individual who made the records.
- Records maintained by a law enforcement unit of the educational agency or institution that were created by that law enforcement unit for the purpose of law enforcement.
- Records relating to individuals who are employed by the institution, which are made and maintained in the normal course of business, relate exclusively to individuals in their capacity as employees, and are not available for use for any other purpose. Records of individuals who are employed as a result of their status as students (for example, work study students) are education records.
- Records relating to a student which are:
  - Created or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional, acting in his/her professional capacity or assisting in a paraprofessional capacity. Used solely in connection with the provision of treatment to the student.
  - Not disclosed to anyone other than individuals providing such treatment.

## Definition - Legitimate Educational Interest

This means the demonstrated need to know by those officials of an institution who act in the student's educational interest, including faculty, administration, student employees, clerical and professional employees, and other persons who manage student records information.

Any school official who needs information about a student in the course of performing instructional, supervisory, advisory, or administrative duties for the University of Colorado Anschutz Medical Campus has a legitimate educational interest.

This includes contractors, consultants, volunteers and other outside providers used by the University of Colorado Anschutz Medical Campus, such as the University of Colorado Foundation and the National Student Clearinghouse.

## Directory Information

FERPA directory information is information contained in a student's education record that generally would not be considered harmful or an invasion of privacy if disclosed. Under current CU Anschutz policy, the following information is designated as directory information:

Student name. If provided, a preferred name will be used when there is not a documented business or legal reason to provide a student's primary name. Students may also select a diploma name for graduation and commencement materials.

- Hometown (city, state).
- Campus email address. \*
- Dates of attendance.
- Previous educational institutions attended.
- School/college or division of enrollment.

- Majors, minors and field of study.
- Classification level (e.g., freshman, sophomore, graduate student).
- University-recognized honors and awards.
- Degree status (e.g. expected graduation date and/or conferral dates/terms).
- Enrollment status.
- Employment related to student status (e.g. teaching assistant, resident assistant or work-study) and dates for positions held.
- Participation in officially recognized activities/sports, including height and weight of athletes.
- Photos and videos taken or maintained by the university.

\*Campus email addresses are only disclosed to requestors who agree not to use them for solicitation.

Although these items are designated by CU Anschutz as directory information, only a limited amount of this information is routinely disclosed by CU Anschutz university officials. The university retains the discretion to refuse disclosure of directory information if it believes such disclosure would be an infringement on student privacy rights.

## Nondisclosure of Directory Information

Students may ask the University not to publicly disclose directory information. Students should be advised, however, if they are seeking employment, the Registrar's Office cannot release their enrollment, degree status or major to anyone unless the student comes to the Registrar's Office with a photo ID.

Forms to prevent disclosure of directory information can be obtained at the Registrar's Office in Education II North, or by visiting the CU Anschutz Registrar's website (<https://www.cuanschutz.edu/registrar/>). Questions regarding student rights under FERPA should be directed to the Registrar's Office:

CU Anschutz Medical Campus  
Campus Box A054  
Phone: 303-724-8000  
Fax: 303.724.8060  
Email: [Registrar@cuanschutz.edu](mailto:Registrar@cuanschutz.edu)

## Exceptions to Student Consent for Release of Educational Records

FERPA allows the institution the right to disclose student records or identifiable information without the student's consent under the following circumstances:

- To authorized representatives for audit of Federal or State supported programs.
- To university employees who are in the process of carrying out their specifically assigned educational or administrative responsibilities acting in the student's educational interest, including contractors, consultants, volunteers and other outside providers used by the University of Colorado Anschutz Medical Campus, including the University of Colorado Foundation and the National Student Clearinghouse.
- Veteran's Administration official.
- Officials of other institutions in which a student seeks or intends to enroll, after transfer enrollment or admission, disability and other health records may be released in the event of an emergency in the need to protect the health and safety of a student or other persons under FERPA.

- Persons or organizations providing financial aid to students.
- Organizations conducting studies for, or on behalf of, educational agencies or institutions to develop, validate, and administer predictive tests, to administer student aid programs or to improve instruction, provided that individual identity of students is not made.
- Accrediting organizations carrying out their accrediting functions.
- Parents of a student who have established that student's status as a dependent according to Internal Revenue Code of 1954, Section 152; in connection with a health and safety emergency in connection with § 99.36; or the student is under 21 and has violated a federal, state or local law or a policy of the university related to the use or possession of alcohol or a controlled substance.
- Persons in compliance with a judicial order or a lawfully issued subpoena, provided that the institution makes a reasonable attempt to notify the student in advance of compliance. NOTE: The institution is not required to notify the student if a federal grand jury subpoena, or any other subpoena issued for a law enforcement purpose, orders the institution not to disclose the existence or contents of the subpoena.
- Persons in an emergency, if the knowledge of information, in fact, is necessary to protect the health or safety of students or other persons.
- An alleged victim of any crime of violence of the results of any institutional disciplinary proceeding against the alleged perpetrator. The information may only be given in respect to the crime committed.
- Schools may disclose personally identifiable information from education records to an outside contractor without prior written student consent if the outside contractor is a "party acting for" the institution and is performing a service which the institution would otherwise have to perform for itself (as in the case of the National Student Loan Clearinghouse for loan verification).
- Representatives of the Department of Homeland Security or Immigration and Customs Enforcement, for purposes of the coordinated inter-agency partnership regulating the Student and Exchange Visitor Information System (SEVIS).
- FERPA has been amended to permit educational agencies and institutions to disclose personally identifiable information from the student's records to the Attorney General of the United States or to his designee in response to an ex parte order in connection with the investigation or prosecution of terrorism crimes, under the US Patriot Act.
- Allows the return of an educational record, or information from an education record, to the party identified as the provider or creator of the record.
- Information regarding a registered sex offender's enrollment or employment status, or any changes of such.
- If the school determines that there is an articulable and significant threat to the health and safety to a student or other individuals, it may disclose information from educational records to appropriate parties.

## Release of Disciplinary Information

Provisions of the Family Educational Rights and Privacy Act of 1974, as amended by the Higher Education Amendments of 1998, govern access to a student's disciplinary file. The student and/or those university officials who demonstrate a legitimate educational need for disciplinary information may have access to the student's disciplinary file. The Campus Security Act permits higher education institutions to disclose to alleged victims of any crime of violence (murder, robbery, aggravated assault, burglary, motor vehicle theft) the results of the

conduct proceedings conducted by the institution against an alleged perpetrator with respect to such crime. The Campus Security Act also requires that both accused and the accuser be informed of campus conduct proceedings involving a sexual assault. Additionally, the Higher Education Amendments of 1998 permit disclosure of the final results of disciplinary cases in which a student has been found responsible for a violation involving violence or for a sex offense.

## Concerns for Student Behavior, Health, and Safety

Across campuses nationwide, there has been a great deal of discussion related to the privacy of student records in relation to tragedies on college campuses. Most CU Anschutz Campus faculty and staff are aware that FERPA protects student rights to view their educational record, access and amend records, and control what disclosures can be made from these educational records. However, many University employees do not realize that FERPA does allow them to disclose information about students who they perceive to be behaving out of character, perceive the student to have a disturbing change in their normal behavior, or generate concerns about the safety of the student or others. It is important for faculty and staff to understand that FERPA does not prohibit the disclosure of personal observations of students.

FERPA allows university staff and faculty the discretion to release this information under specified circumstances, and through proper channels, to appropriate personnel on campus.

What are the “specified circumstances”?

FERPA allows the disclosure of information from the educational record, without the written consent of the student, under the following: “Persons in an emergency, if the knowledge of information, in fact, is necessary to protect the health or safety of the student or other persons”. The Department of Education interprets FERPA to permit institutions to disclose information from education records to parents if a health or safety emergency involves their son or daughter. For clarification purposes, the Department of Education recently proposed to amend the language of a “strictly construed” interpretation, and replace it with language that states the institutions have far “greater flexibility and deference” to “bring appropriate resources to bear on a circumstance that threatens the health or safety of individuals”.

Some concerns have been expressed by faculty and staff on campus that they are reluctant to share any information with the appropriate personnel on campus if the student advised them, verbally or in writing, that they were seeing a mental health or other medical professional. Note that anything expressed verbally by a student is not part of the “educational record”, and can be shared. If the student has advised a staff or faculty member of this in writing, it can still be shared with someone with “an educational need to know” as described by FERPA regulations, which would include those listed as the “appropriate personnel on campus” below.

To summarize: FERPA does not prohibit disclosure of personal observations to appropriate campus personnel about students of concern. Observers of such behaviors do not have to determine if this is an emergency that will be considered a threat of health or safety. They can consult with other appropriate personnel on campus for additional perspective, suggestions, resources, referral or assistance.

Who are the “appropriate personnel on campus”?

There are a variety of offices and personnel on campus who can be of assistance when you are faced with a student of concern. Some of these resources are listed below:

Department Chair/Associate Dean/Director – in many cases these individuals are excellent resources and can help you to support the student and/or find additional support and resources on campus.

Student and Resident Mental Health Services – located in the Fitzsimons Building, Level 2 (East hallway), and available by phone at 303.724.4716. Clinical service hours are 8 a.m. to 8 p.m. Monday, Tuesday, and Wednesday, and 8 a.m. to 5 p.m. Thursday and Friday. Appointments can be made by phone, or by emailing [SMHservice@ucdenver.edu](mailto:SMHservice@ucdenver.edu) ([smhservice@ucdenver.edu](mailto:smhservice@ucdenver.edu)).

The Campus Assessment Response & Evaluation Team (CARE) – is a multidisciplinary team that reviews and evaluates student behavioral concerns and intervenes as appropriate. Contact the CARE Team to submit a concern online 24 hours a day on their website (<https://www.cuanschutz.edu/student/support/care-team/>) and learn much more about recognizing and responding to students in crisis.

CU Anschutz Office of Case Management – located in Education II North, with additional information available via their website (<https://www.cuanschutz.edu/student/support/case-management/>). This office collaborates with all of the schools and colleges to ensure students have access to resources that help them navigate challenging experiences. This office also manages the Medical Leave of Absence/Fit to Return process, and convenes the CARE Team when applicable. Staff are available to consult regarding disruptive behavior and concerns.

These offices are available for phone consultation to meet individually, or with a group of staff or faculty members to problem-solve about a particularly complex student situation. Other appropriate resources may also be referenced.

Finally, in an urgent situation, never hesitate to call University Police at 303.724.4444, or for emergency calls, 911.

For more information about CU student mental health resources, please visit one of the websites below:

CARE Team (<https://www.cuanschutz.edu/student/support/care-team/>)

CU Anschutz Office of Case Management (<https://www.cuanschutz.edu/student/support/case-management/>)

Student and Resident Mental Health (<https://medschool.cuanschutz.edu/psychiatry/programs/student-resident-mental-health/>)

Some faculty think they should not reveal the name of the student and keep the consultation anonymous. However, this is key information for the consulting party as that professional may already have some information about the student of concern that should be added into the information for the best way to proceed. Some of these professionals may already have had contact with the individual and you may be providing key information which the professional would need to know to be effective. Licensed mental health professionals have strict confidentiality laws to follow which restricts their ability to inform you. FERPA allows great discretion in informing the mental health professional of observed professional observations, as well as allows observers to share information about a student with a person who has an “educational need to know”.



In conclusion, it is important for all members of the CU Anschutz community to understand that FERPA does not prevent you from contacting others on the campus if you there are concerns about the behaviors of a student on campus. However, only those who are identified as the “appropriate personnel on campus” should be contacting the parents or other relatives of students. These trained individuals are most knowledgeable in human behavior, and can best determine if further concern is warranted.

## Requests for Access to and Amendments of Education Records

**Brief Description:** Establishes procedures for making and responding to requests for access to and amendment of education records, consistent with the Family Educational Rights and Privacy Act of 1974 (FERPA).

### Making and Responding to Requests for Access to Education Record

#### Access Request and Review Procedure

- A student should submit a request to review his or her education records in writing to the registrar, dean, chairperson of an academic department, or other official who maintains the records he or she wishes to inspect. The request should identify, to the extent possible, the specific records the student desires to review by type, topic, date or other criteria.

The university official who has custody of the records will assemble the requested records and review them to determine whether they are eligible for access.

- If an education record includes information about more than one student, the student may review only his or her own information in that record. In this situation, the record custodian must redact the record before allowing the student to review it.
- Any questions about whether a record is eligible for review or how to properly redact an education record should be addressed with the Office of the Registrar.
- Before denying a student access to an education record, record custodians must consult with the Registrar, and should document in writing the reason for the denial.
- The record custodian must respond to a request for access to education records within a reasonable period of time, but in no case more than forty-five (45) days after the request has been submitted to the appropriate custodian. If the records are not maintained by the record custodian to whom the request was submitted, the custodian should assist the student in identifying the custodian to whom the request should be addressed. For information about where certain student education records may be located, consult the Office of the Registrar.

CU Anschutz Medical Campus  
Campus Box A054  
Phone: 303-724-8000  
Fax: 303.724.8060  
Email: Registrar@cuanschutz.edu

- The record custodian will make arrangements for access and notify the student of the time and place where the records may be inspected.
- If not personally known to the record custodian, the record custodian must verify the student's identity by inspection of photo identification or other appropriate documentation.

## Making and Responding to Requests for Amendment of Education Records

### Procedure for Amendment of Education Records

- If a student believes information contained in his or her record(s) is inaccurate, misleading or violates privacy rights, a student may ask the university to amend the record(s). If the problem stems from a clerical or other error in processing, the student should contact the record custodian and follow the established process to effect the necessary corrections. Similarly, a student should pursue the grievance and/or appeal process if he or she has a concern about the appropriateness of a grade awarded or other academic determination.
- This procedure does not apply to students who desire to challenge a grade. Students who wish to challenge a grade should follow the academic grievance policy in their school or college. If the desired correction of processing errors is not accomplished through normal channels, or the requested amendment is not to correct processing errors or address substantive academic decisions, the student should follow the following procedure:
- The record custodian will review the amendment request and any related documentation submitted by the student. The record custodian may request additional information from the student if deemed necessary to make a determination.
- Within a reasonable time after receipt of the written request, the record custodian will decide whether to amend the record as requested.
- If the record custodian grants the student's request, the custodian shall amend the education record and inform the student in writing of the action taken.
- If the record custodian denies the student's request, the custodian shall inform the student in writing of the decision and of his or her right to a hearing on the matter. Additional information about the hearing procedures will be provided to the student when notified of the right to a hearing.

### Right to Hearing and Related Procedures

- Within ninety (90) days of the date of the denial of his or her request by the record custodian, a student may request a hearing.
- The Registrar may serve as the hearing officer, or may appoint another individual to serve as hearing officer. The appointed hearing officer shall not have a direct interest in the outcome of the hearing. The hearing officer shall not review any matter regarding the appropriateness of official grades or other such academic determinations.
- The hearing shall be conducted according to the following procedures:
  - The hearing officer shall give notice to all concerned parties of the date, place and time of a hearing reasonably in advance. The hearing should be scheduled within a reasonable period of time following receipt of the petition.
  - The hearing officer shall give the student an opportunity to present evidence relevant to the contested part of the education record. The student may have a representative present at the hearing, but that person cannot participate in the hearing.
  - The hearing officer may receive any evidence and testimony, orally or in writing, relevant to the student's challenge to the record content. The hearing officer shall not be bound by the rules of evidence applicable in courts of law, but may permit



the introduction and receipt of evidence he or she determines is relevant.

- Within a reasonable period of time, the hearing officer shall issue a written decision based solely upon the evidence presented at the hearing. A copy of the decision, which must include a summary of the pertinent evidence, shall be provided to the student, to the record custodian, and to the Registrar. The decision of the hearing officer shall be the university's final decision.
- If the Registrar acting as hearing officer or an individual appointed by the Registrar to act as hearing officer determines that the information is inaccurate, misleading or otherwise in violation of the student's privacy rights, the Registrar should require the record custodian to make necessary amendments. The record custodian shall inform the student in writing when the amendment has been made.
- If the hearing officer determines that the information is not inaccurate, misleading or otherwise in violation of the student's privacy rights, he or she shall inform the student in writing of the right to place a statement in the record commenting on the contested information in the record and/or stating why he or she disagrees with the decision.
- The university must maintain the statement with the contested part of the record for as long as the record is maintained, and must disclose the statement whenever it discloses the portion of the record to which the statement relates.

## Parental Access to Children's Education Records

At the post secondary level, parents have no inherent rights to inspect a student's education records. The right to inspect is limited solely to the student. Records may be released to the parents only under the following circumstances:

- Through the written consent of the student
- In compliance with a subpoena
- By submission of evidence that the parents declare the student as a dependent on their most recent Federal Income Tax form (IRS Code of 1954, Section 152).
- May disclose education records to a parent under the alcohol and controlled substance exception or in connection with a health and safety emergency under the circumstances set forth in § 99.36 (if the students is under 21 years of age).

## Posting of Grades by Faculty

The public posting of grades either by the student's name, institutional student identification number, or any portion of a social security number is a violation of FERPA, whether done via paper source or via electronic means (including the internet).

Instructors and others who post grades should use a system that ensures FERPA requirements are met. This can be done by using code words or randomly assigned numbers that only the instructor and individual students know.

## Students' Rights after Ceasing Attendance or Graduation

Students who have ceased attendance or have graduated from an institution of higher education have basically the same FERPA rights as students currently attending the University of Colorado Denver, including the right to:

- Inspect their education records
- Have a hearing to amend an education record, and
- Have their education privacy protected by the institution.
- Have the institution honor the previously established opt-out request.

Once students leave the university they do not have the right to request a privacy code (non-disclosure) be placed on their records.

## References for Students by Faculty

FERPA's prohibition on disclosure of personally identifiable information from an education record of a student applies to any kind of non-directory information (e.g., performance in class, grades, attitude, motivation, abilities, background) conveyed in writing, in person, or over the telephone to third-parties.

Although such information is usually conveyed by faculty members at the informal request of the student and is usually positive, the better practice would be to request a written consent form, meeting the FERPA requirements, before providing the information.

## Written Consent

Students may release their academic records to their parents, a prospective employer, insurance companies, etc., by providing written consent. The notice of written consent must include the following information:

1. It must specify the records to be released (transcripts, etc.)
2. State the purpose of the disclosure
3. Identify the party or class of parties to whom disclosure may be made, and
4. Be signed and dated by the student

## Disposal of Educational Records

Information about individuals should be retained according to state or University records retention schedule. Those responsible for academic information have an obligation to destroy information when conditions under which it was collected no longer prevail.

Any document containing personally identifiable information must be disposed of properly through some means of confidential disposal. If information is needed on confidential disposal, please contact the Office of the Registrar:

CU Anschutz Medical Campus  
Campus Box A054  
Phone: 303-724-8000  
Fax: 303.724.8060  
Email: Registrar@cuanschutz.edu

## Honor Code

This campus-wide policy statement on student academic honor and conduct at the University of Colorado Denver | Anschutz Medical Campus was developed in consultation with faculty and student representatives from each health sciences school, and representatives of the campus-wide Faculty Council and Student Senate. It provides general policies for all students on campus, in accordance with the Regents' resolution of March 17, 1988, while at the same time it directs the schools to develop specific procedures to implement the policy in accordance with their unique programs and student populations. While the process for resolving honor code violations may vary from school to school, the elements listed below will remain uniform. The health professions are based on a high degree of trust by the individuals they serve. Students entering the health professions have a particular obligation, therefore,

to conduct themselves at all times in a manner that reflects honesty, integrity, and respect for others.

## A. Academic Honor and Conduct Code:

Education at the University of Colorado Denver | Anschutz Medical Campus is conducted under the honor system. All students who have entered health professional programs should have developed the qualities of honesty and integrity, and each student should apply these principles to his or her academic and subsequent professional career. All students are also expected to have achieved a level of maturity which is reflected by appropriate conduct at all times.

Although it is not possible to list every situation that violates the University of Colorado Denver | Anschutz Medical Campus academic honor and conduct code, the following examples will provide a reference point.

- **Academic Honesty** - Students should adhere to the highest standards of academic honesty and integrity. Examples of behavior which violates these standards include: plagiarism (including improper use of web information), cheating illegitimate possession and/or use of examinations, and falsification of official records.
- **Professional Conduct** - As future health professionals, students should also adhere to the highest standards of professionalism. Examples of unprofessional conduct include: misrepresentation of effort, credentials or achievement in either the academic or clinical setting; any action which compromises the quality of patient care; violation of patient confidentiality; and other conduct unbefitting a health professional.
- **Alcohol and Drug Use** - Alcohol and/or drug abuse compromises the student's ability to learn and to practice as a health provider and, thus, is considered unprofessional conduct. Students who have a problem with alcohol and/or drugs should seek assistance from services available on campus. The sale of drugs or the possession of non-prescribed narcotics or other controlled substances is against the law. In order to minimize the potential for alcohol abuse at campus functions, students must work with University and/or their program administration to ensure compliance with the policies and procedures regarding functions where alcohol may be served.
- **Respect for the Rights and Property of Others** - Students should conduct themselves in a manner which recognizes the rights and property of others. Examples of inappropriate behavior include theft, damage to University facilities, harassment or physical assault, and any conduct which threatens the health or safety of others.

The primary responsibility for reporting violations of the student honor and conduct code rests with the individual student who has violated them. However, fellow students and members of the faculty also share in this responsibility.

## B. Relationship of Honor and Conduct Code to Local, State, and Federal Laws

The University adheres to all appropriate local, state, and federal laws, and cooperates with law officials in all matters. Any alleged violation of local, state, or federal laws will be referred to the appropriate law enforcement agency, and such laws have precedence over the provisions of this policy.

## C. Honor and Conduct Committee

Each school will have a standing Student Honor and Conduct Committee and, as appropriate, individual programs may have standing committees. The composition of the committee will include faculty and student

representatives, with the exact composition of the committee to be determined by the dean in consultation with the school's faculty and student governance groups. The primary function of this committee will be to examine alleged violations of the honor and conduct code, and to make recommendations to the dean on these matters as appropriate.

## D. Check individual school policies for school-specific procedures.

### Student Conduct

"By enrolling as a student in the university, a person shall assume obligations of performance and behavior established by the university relevant to its lawful missions, processes, and functions. As members of the academic community, students have responsibility, equivalent to that of the faculty, for study, learning, academic integrity, and protecting the university as a forum for the free expression of ideas."

(Laws of the Regents 7B Standards of Conduct)

## Nondiscrimination Statement (Article 8.A, Laws of the Regents)

The University of Colorado does not discriminate on the basis of race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, or political philosophy in admission and access to, and treatment and employment in, its educational programs and activities.

The Office of Equity for the University of Colorado Denver | Anschutz Medical Campus

Location: Education 2 North, Room 5221

Email: [Equity@ucdenver.edu](mailto:Equity@ucdenver.edu)

Phone: 303-315-2567

Address: 13120 E. 19th Avenue, Room 5221, Campus Box 187, Aurora CO 80045

Please contact the office if you wish to report a violation of Article 8 or need additional information. A statement of Article 8 may be found online at <https://www.cu.edu/regents/law/8> (<https://www.cu.edu/regents/law/8/>).

The University of Colorado Denver | Anschutz Medical Campus policy and procedures for investigating complaints of discrimination may be found online via the Office of Equity website (<https://www.ucdenver.edu/offices/equity/university-policies-procedures/#ac-nondiscrimination-policy-0>), or by reviewing the policy and procedural document here ([https://www.ucdenver.edu/docs/librariesprovider102/default-document-library/2022-02-28\\_3054-nondiscrimination-policy-\(2\).pdf?sfvrsn=9a3cb2ba\\_2](https://www.ucdenver.edu/docs/librariesprovider102/default-document-library/2022-02-28_3054-nondiscrimination-policy-(2).pdf?sfvrsn=9a3cb2ba_2)).

## Freedom of Expression and Inquiry

Academic freedom and diverse viewpoints are highly valued at the University of Colorado Anschutz Medical Campus. For students, academic freedom pertains to their course discussion, course assignments, and scholarly work. All members of the University community have the right to free expression as stated in Article 1.E of Regent Law and further elaborated in Regent Policy 1.D; however this right is distinct from academic freedom.

While faculty have the right to establish classroom procedures to ensure orderly discussion and progress towards the goals of a class, students have the freedom to raise questions and express reasoned opinions on

the matters being discussed. Students also have the ability to discuss matters related to their courses with faculty during office hours and take reasoned exception to the views or methods offered in any course of study. Students should be evaluated solely on academic performance, which shall be assessed according to the published requirements established by the instructor or academic unit. Academic freedom does not give either faculty or students the right to disregard the standards of conduct outlines in Regent Laws Article 7.

If students believe their academic freedom rights have been violated, the campus will investigate complaints and remediate confirmed violations.

Also see Laws of the Regents Article 5, Part D.1 Intent and Definition.

## Sexual Misconduct, Intimate Partner Violence, & Stalking Procedures (in accordance with Title IX)

### I. Overview and Mission Statement of the Office of Equity

The University of Colorado Denver | Anschutz Medical Campus ("University") is committed to providing a safe and non-discriminatory environment for all members of the University community. The University prohibits all forms of Sexual Misconduct<sup>1</sup>, including all conduct prohibited by Title IX and other sexual misconduct. These forms of misconduct and Related Violations are defined in APS 5014, Sexual Misconduct, Intimate Partner Violence, and Stalking Policy ("Policy"). This document identifies the procedures ("Procedures") the University follows when it receives a report alleging Sexual Misconduct. The University uses these Procedures to investigate and resolve any such allegations and to impose disciplinary sanctions against individuals found responsible for violating the Policy.

The University's Office of Equity (OE) strives to stop, prevent, and remedy discrimination, harassment, sexual misconduct, and any related retaliation; provide education on these topics; design policy to make our campus safer and more inclusive; and ensure all people are treated with dignity, compassion, and respect.

The OE's administration of the Policy is conducted in accordance with Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and other applicable federal and state laws.

These Procedures describe the University's Procedures for the investigation and remediation of potential sexual misconduct. It does not constitute a contract, whether express or implied, between the University and any person who is subject to requirements. The University reserves the right to modify these Procedures at its discretion and without notice.

### II. Prohibited Conduct

The University will be responsive to any report or complaint of "Prohibited Conduct" as listed below and is committed to providing prompt, fair, impartial, and equitable resolutions of any complaint reported to the OE, whether reported directly by a complainant or by a third party, such as a mandatory reporter. The primary concern is the safety of all University community members. The University will take steps to prevent recurrence of any prohibited conduct and remedy discriminatory effects on the complainant and others, as appropriate.

The Policy prohibits "Sexual Misconduct," meaning both conduct on the basis of sex specifically prohibited by Title IX as well as conduct that falls outside of Title IX's jurisdiction. Specifically, the Policy prohibits sexual assault, dating violence, domestic violence, Title IX stalking, sexual

exploitation, Title IX hostile environment, hostile environment, Title IX quid pro quo sexual harassment, and quid pro quo sexual harassment. The Policy also prohibits retaliation and other related violations.

### A. Related Violations & Consolidation of Complaints

Other misconduct, while not falling within the definition of Sexual Misconduct, hinders the University's ability to uphold its legal obligations and ensure equal access to educational and employment opportunities. As such, the University prohibits the following conduct:

1. **Failure to Report** –The University will administer the Policy in a manner that promotes the reporting of prohibited conduct and avoids disciplinary actions when *responsible employees* conscientiously discharge their reporting obligations. A failure to report an allegation of prohibited conduct shall result in a violation of the Policy only if the *responsible employee* received information that a member of the University community was subjected to or committed an act of prohibited conduct and intentionally, knowingly, or recklessly disregarded the obligation to report, thus resulting in harm to a member of the University community.
2. **Retaliation** –The University will not permit *retaliation* against a member of the University community because the individual has made a report or *formal complaint*, testified, assisted, or participated or refused to participate in any manner in an investigation, proceeding, or hearing. Intimidation, threats, coercion, or discrimination, including charges against an individual for code of conduct violations that do not involve sex discrimination or prohibited conduct, but arise out of the same facts or circumstances as a report or complaint of sex discrimination, or a report or *formal complaint* of prohibited conduct constitutes *retaliation*.
3. **Providing Materially False Statements** –Providing materially false statements related to prohibited conduct is contrary to the purposes of the Policy. Members of the University community must provide reports of prohibited conduct in good faith. A person who knowingly or recklessly makes false statements or knowingly or recklessly submits false information during the grievance process violates the Policy. Making a report or providing information in good faith, even if the facts alleged in the report are not later substantiated, will not constitute providing false or misleading information.
4. **Interference with Reporting** –No member of the University community may prohibit or interfere with a *responsible employee* or any other person's reporting prohibited conduct to the Title IX Coordinator or designee.
5. **Failure to Comply with Orders and Sanctions** –Subject to any rights of appeal, members of the University community must comply with orders of the Title IX Coordinator or other appropriate University officials related to the Policy, including but not limited to no-contact orders, exclusions orders, and emergency removal orders. Subject to any rights of appeal, members of the University community must abide by and complete sanctions related to prohibited conduct.
6. **The University may consolidate *formal complaints* of prohibited conduct with charges of related violations in situations that arise out of the same facts or circumstances and proceed under the grievance process applicable to *formal complaints* described in Section V(A)(4)(a and b) of the Policy. Alternatively, in the absence of a *formal complaint* for prohibited conduct, the University may proceed with adjudication for related violations under other applicable procedures or conduct codes.**

Additionally, when more than one formal complaint is received by the OE, the OE may consolidate formal complaints in situations that arise out of the same facts or circumstances and involve more

than one complainant, more than one respondent, or what amount to counter-complaints by one party against the other. The OE may also consolidate under the grievance process related violations as designated in the Policy or other prohibited conduct under other policies, procedures, or conduct codes. The OE may initiate an investigation into allegations of related Prohibited Conduct on behalf of the University when there is no individual *complainant* who reports the allegation, but the OE nevertheless becomes aware of the potential related misconduct.

### III. Jurisdiction

The Procedures govern all students, faculty, staff, contractors, patients, volunteers, affiliated entities, and other third parties, regardless of sex, gender, sexual orientation, gender expression, or gender identity. Subject to any rights of appeal, any person found responsible for engaging in Prohibited Conduct may be subject to disciplinary action, up to and including expulsion or termination of employment. The University will consider what potential actions should be taken, including contract termination and/or property exclusion, regarding third-party conduct alleged to have violated the Policy, but those options may be limited depending on the circumstances of the arrangement.

The Policy applies to conduct that occurs within an *education program or activity* of the University, or if the *complainant* or *respondent* are affiliated with the University community. This includes off-campus conduct, including online or electronic conduct. Alleged conduct may be considered either *Title IX Sexual Misconduct* or *Sexual Misconduct*, depending on the following jurisdictional requirements:

#### A. Title IX Sexual Misconduct

*Title IX Sexual Misconduct* applies to conduct that occurs in an education program or activity against a person in the United States. If the Prohibited Conduct falls under Title IX Sexual Misconduct jurisdiction and definitions, the Title IX Coordinator or designee must utilize the Title IX Sexual Misconduct Procedures as prescribed by the Title IX Regulations.

#### B. Sexual Misconduct

*Sexual Misconduct* applies to conduct that does not otherwise meet the jurisdictional standard or definition of Title IX Sexual Misconduct, but where the conduct occurred in the context of an employment or *education program or activity* of the University or where both the *complainant* and *respondent* are affiliated with the University.

For all allegations of *Sexual Misconduct* not falling under Section III(A) above, the Title IX Coordinator or designee will consider the degree of the University's control over the *respondent* and the relationship between the *complainant* and *respondent*, and assess the surrounding circumstances of the alleged conduct for the presence of the following factors:

1. Targets or causes harm to an individual connected with the University;
2. Threatens further sexual or other violence against the *complainant* or others and there is reasonable fear that such further conduct could target or cause harm to someone connected to the University;
3. Is of a violent nature or was frequent or severe;
4. Prior or current similar, misconduct complaints about the *respondent*, or if the *respondent* has a known history of records from a prior school indicating a history of sexual or other violence;
5. Use of, or threat to use, a weapon, access to or attempts to access weapons, or a history of bringing weapons to the University;
6. Multiple alleged *complainants* or *respondents*;

7. Facilitation by the *incapacitation* of the *complainant* through alcohol, drugs, disability, unconsciousness, or other means;
8. The complainant is a minor;
9. Whether the alleged sexual misconduct reveals a pattern of perpetration at a given location or by a particular group; or
10. Any other signs of predatory behavior.

If the Title IX Coordinator or designee determines that at least one of the above factors is present, then the Title IX Coordinator or designee may determine that the University may exercise jurisdiction, and the Sexual Misconduct Policy standards apply.

The Title IX Coordinator or designee is authorized to determine whether the Policy applies to alleged prohibited conduct and whether the University has jurisdiction to take any action pursuant to the Policy.

The University has an obligation and jurisdiction to conduct at least a preliminary inquiry to determine whether the alleged conduct occurred in the context of, or has continuing effects on, employment or an education program or activity.

Actions taken under the Procedures are separate and apart from any law enforcement or other court process or proceeding, such as a civil lawsuit or criminal prosecution, that may relate to the same underlying factual incident. OE's jurisdiction does not depend on whether criminal charges are filed. Formal investigations or other case resolutions conducted by the OE are not postponed while criminal or civil proceedings are pending unless there are extenuating circumstances, as determined by the OE. Dismissal of criminal or civil charges or acquittal in a criminal or civil case does not prevent the OE from addressing an incident. There is no time limitation for reporting a concern to the OE or for the OE to address matters described in this document. If the alleged conduct is reported to have occurred prior to the effective date of the current Policy, the OE will apply the Policy that was in effect at the time the alleged conduct reportedly occurred, to the extent that the policies differ in defining prohibited conduct. However, regardless of the Policy in force at the time the conduct is alleged to have occurred, the OE's procedural response to the report will be governed by the current Procedures.

The failure of an individual to appear and/or respond to the OE does not prevent the OE from proceeding with or completing the applicable process.

For employees, any matters falling outside the scope of the Policy shall be addressed by the appointing/disciplinary authority. For students on the CU Denver campus, the Office of Student Conduct and Community Standards (SCCS) has jurisdiction for all other student conduct matters. For students on the CU Anschutz campus, the respondent's school, college, or program has jurisdiction for all other student conduct matters falling outside the scope of this Policy. In the event that there are multiple potential charges involving the Policy and the Student Code of Conduct or school, college, or program policies, the OE and related conduct authority shall have the discretion to jointly determine the most appropriate way to proceed. Options include, but are not limited to, concurrent investigations, joint investigations, deferring to the findings of one office or using the investigation or findings of one office as the basis for further investigation by the other.

University employees and students may work or study at the worksite or program of another organization affiliated with the University. When a violation is alleged by or against University employees or students in those circumstances, the complaint shall be addressed as provided in the affiliation agreement between the University and the other entity.



In the absence of an affiliation agreement or a provision addressing this issue, the University may, at its discretion choose to (1) conduct its own resolution process; (2) conduct a joint resolution process with the affiliated party; (3) defer to the findings of a resolution process with the affiliated entity where the University has reviewed the resolution process and is satisfied that it was fairly conducted; (4) use the resolution process and findings of the affiliated entity as a basis for further investigation or adjudication; or (5) take other action as determined appropriate by the Title IX Coordinator or designee.

Conduct alleged to have occurred before an individual became a student, faculty, staff, contractor, patient, volunteer, or affiliated entity with the University may be addressed through applicable remedial, protective, and/or educational measures, if the alleged conduct interferes with or impedes upon equal access to employment or education program or activity for any current University community members, as determined by the OE Director(s).

### **C. Reports Involving Two or More Campuses or Affiliated Entities**

#### **1. Two or More University of Colorado Campuses**

When the alleged violation of the Policy involves more than one University of Colorado campus, the complaint shall be resolved by the campus with the disciplinary authority over the respondent. The campus responsible for the investigation may request involvement or cooperation of any other affected campus and should advise appropriate officials of the affected campus of the progress and results of the resolution process.

#### **2. Affiliated Entities**

When the alleged violation of the Policy involves an institution affiliated with the University of Colorado Denver | Anschutz (including, but not limited to, Metropolitan State University, Community College of Denver, Children's Hospital, University of Colorado Hospital, or the Veterans Administration), the reported concern will be provided to the entity with primary disciplinary authority over the respondent. In these instances, the OE may be unable to conduct a formal investigation though the OE may be able to work collaboratively with the affiliated entity to assist in the resolution and remedy of the matter. Additionally, while the OE may be unable to conduct a formal investigation, the OE may still consider and implement supportive measures.

### **D. Supportive and Safety Measures**

Supportive measures are non-disciplinary, non-punitive individualized services offered as appropriate, as reasonably available, and without fee or charge to the complainant or the respondent that are designed to restore or preserve equal access to the University's education program or activity without unreasonably burdening the other party, including measures designed to protect the safety of all parties or the University's educational or work environment, or deter Prohibited Conduct. Supportive measures should be individualized and appropriate based on the information available to the Title IX Coordinator or designee.

Some safety measures involve restricting a respondent's access to University programs and activities and may not become available until after the completion of Formal Grievance Process, unless emergency removal action is determined appropriate. See Section III(E) below.

Whether supportive or safety measures are appropriate is determined after an individualized assessment by the Title IX Coordinator or designee and every effort should be made to avoid depriving any student of educational access. Supportive or safety measures may be kept in place, lifted, or modified as additional information is obtained, or may be extended permanently, as appropriate.

Complainants and respondents may request supportive or safety measures from the Title IX Coordinator or designee. Supportive measures should be provided to complainants or respondents whether or not the complainant files a formal complaint or engages in another resolution process. Witnesses or other participants in a Formal Grievance Process may also request supportive or safety measures. The Title IX Coordinator or designee will maintain oversight of these requests and the provision of any such measures.

The University will keep confidential any supportive measures provided to the complainant or respondent, to the extent that maintaining such confidentiality will not impair the University's ability to provide the supportive measures. Types of supportive and safety measures:

1. Academic support measures (arranging for a party to retake a course, excuse related absences, request extensions on assignments or exams, change sections when available or withdraw from a class without penalty)
2. Accessing medical services
3. Accessing counseling services
4. Employment modifications
5. Transportation changes
6. No-contact orders enforced by the University
7. Discussing options for obtaining criminal or civil protection or restraining orders
8. Residential relocations in CU Denver Housing and Dining and/or offering resources for housing off-campus
9. Changes to, or interim exclusion from, classes
10. Interim exclusion orders (for parts of or entire campus)
11. Interim student suspension. See Section III(E).
12. Administrative leave for employees in consultation with Associate Vice Chancellor and Chief Human Resources Officer or designee and appointing/disciplinary authority
13. Temporary suspension of supervisory or evaluative authority for employees in consultation with Associate Vice Chancellor and Chief Human Resources Officer and appointing/disciplinary authority

### **E. Emergency Removals**

The University may remove a respondent from an education program or activity on an emergency basis after 1) the University undertakes an individualized safety and risk analysis, 2) determines that an immediate threat to the physical health or safety of any students or other individuals arising from the allegations of the Policy justifies removal and 3) provides the respondent with notice and an opportunity to challenge the decision immediately following the removal.

Types of Emergency removal include, but are not limited to:

- Interim student suspension
- Interim or permanent exclusion order for parts of or entire campus, classes, etc.
- Administrative Leave. Decisions to place a non-student employee on administrative leave during the pendency of a Formal Grievance Process are made in consultation with Associate Vice Chancellor & Chief Human Resource Officer or designee and appointing/disciplinary authority.
- Temporary suspension of supervisory or evaluative authority for employees in consultation with Associate Vice Chancellor & Chief Human Resource Officer or designee and appointing/disciplinary authority.



## F. Individualized Safety and Risk Analysis

The Title IX Coordinator/Director of Title IX or designee has the authority to conduct an individualized safety and risk analysis. The Title IX Coordinator may consult with other offices on campus such as the CARE Team and FAST Team in conducting the individualized safety and risk analysis. The factors considered in an emergency removal decision include:

1. Seriousness of the alleged conduct;
2. Location of alleged incident(s);
3. The risk that the alleged respondent will commit additional acts of sexual or other violence;
4. Whether the alleged respondent threatened further sexual or other violence against the alleged complainant or others;
5. Whether there have been other misconduct complaints about the same alleged respondent or whether the respondent has a known history of sexual or other violence;
6. The existence of multiple alleged complainants and/or respondents;
7. Whether the conduct was facilitated by the incapacitation of the complainant(through alcohol, drugs, disability, unconsciousness, or other means);
8. Whether the alleged conduct was perpetrated with force, violence, or weapons;
9. Whether the alleged complainant is a minor;
10. Whether the alleged conduct reveals a pattern of perpetration (by the alleged respondent or group or organization, around a particular recurring event or activity, and/or a particular location); and/or
11. Whether any other aggravating circumstances or signs of predatory behavior are present.

In the case of an emergency removal, the student will be provided oral and/or written notice of the alleged Prohibited Conduct and the opportunity to meet, if the student chooses, with the Title IX Coordinator or designee. The Title IX Coordinator or designee will ensure that the student is afforded the opportunity to meet within **five business days** of the notice of emergency removal. This does not preclude additional meetings after the five days has passed to review the emergency removal. **It is the responsibility of the respondent to schedule the meeting if requested.**

After providing the respondent with notice of the allegations and an opportunity to be heard, the Title IX Coordinator or designee may decide to lift or continue the emergency removal, potentially until the completion of the grievance process. The Title IX Coordinator or designee may also determine whether any exceptions may be appropriate based on factors which include, but are not limited to, nature/severity of the behavior, prior misconduct, extent of academic progress to date, and availability of faculty and/or online classes. The interim supportive and safety measures may be re-evaluated during the course of a grievance process if new information is presented that mitigates the threat to campus safety.

In the case of an emergency removal, including campus exclusion, procedures outlined in the Exclusion of Persons from University Property will be followed.

## Reporting Options

**\*Call 911 in an Emergency if you have an immediate safety concern.\***

### A. University/Office of Equity

To notify the University of any Prohibited Conduct listed in Sections II, II(A), III, and III(A)(B) to request support measures related to such conduct,

or to initiate an OE resolution process, please contact the OE directly via email at [equity@ucdenver.edu](mailto:equity@ucdenver.edu) or via phone at 303-315-2567.

Karey Krohnfeldt, Title IX Coordinator & Director of Title IX

Office of Equity  
Lawrence Street Center  
Campus Box #187  
1380 Lawrence Street,  
12th Floor  
Denver, CO 80217

Phone: 303-315-2567

Email: [equity@ucdenver.edu](mailto:equity@ucdenver.edu)

For a full list of reporting options, please refer to the OE's website (<https://www1.ucdenver.edu/offices/equity/resolutions/make-a-report>) (<https://www1.ucdenver.edu/offices/equity/resolutions/make-a-report>)).

### 1. Amnesty Provisions

To encourage reporting and participation, personal consumption of alcohol or other drugs by the complainant, respondent, or witnesses will not be subject to disciplinary action. Similarly, minor infractions related to failure to comply with public health and safety provisions in the Student Code of Conduct will not be subject to disciplinary action. The goal of these provisions is to remove potential barriers to reporting and/or participation. However, final jurisdiction and decision-making regarding any conduct not covered by the Applicable Policies will be made by the Director of Student Code Conduct and Community Standards (for students) or the appointing/disciplinary authority (for employees).

Even if a complainant chooses not to report formally and/or chooses not to participate in an adjudicative process (through OE or law enforcement), the complainant can contact the OE for information and assistance accessing on-or off-campus supportive services as set for in Section VIII and to access available supportive and safety measures as set forth in Section III(D).

### B. Law Enforcement

Complainants are not required, but do have the right, to file a criminal complaint with law enforcement and the University/OE simultaneously. The OE can assist in reporting to law enforcement for complainants alleging misconduct that is also a criminal offense.

In some instances, the OE is obligated to report the alleged conduct to the appropriate law enforcement agency. In those instances, the OE will make reasonable effort to notify potential complainants prior to reporting to law enforcement.

- 911 (for emergencies)
- Auraria Police (for non-emergencies) 303-556-5000
- Anschutz Medical Campus Police (for non-emergencies) 303-724-4444
- Denver Police (for non-emergencies) 720-913-2000
- Aurora Police (for non-emergencies) 303-627-3100

Reporting to the University Police will constitute notice to the University/OE and may result in an OE resolution process subject to applicable state law.

### 1. Preservation of Evidence

Regardless of whether or not a complainant wants to report an incident(s), it is important to preserve any evidence of the sexual assault, so that if a complainant decides at any point in time to report the incident, that evidence is still available. Examples of evidence to preserve include, but are not limited to: the clothing the individual was wearing, bedding, text message correspondence discussing the assault (either

with the respondent or with friends or family), photographs, screenshots, emails, social media correspondence/posts (Facebook, Tinder, Snapchat, Instagram, Grindr, etc.), correspondence via other messaging applications (Whatsapp, Kik, GroupMe, WeChat, etc.).

Regardless of whether an individual wants to report the assault to the police, a medical exam can be done to preserve evidence. Sex Assault Nurse Examiner (SANE) programs at the Emergency Department at Denver Health Medical Center, University of Colorado Hospital, Children's Hospital, Porter Adventist Hospital, Medical Center of Aurora –South Campus, Saint Anthony North Hospital, Saint Anthony Hospital 84th Avenue Location, Littleton Adventist Hospital, are available to conduct a SANE exam, ideally within five days of the sexual assault. It is best if an individual does not bathe, shower, eat, drink, douche, or change clothes. However, evidence can be collected if you have done any or all of these things. More information about the SANE can be located on the hospital's respective websites. Contact information and addresses for these and other locations within the state of Colorado can be found on the OE website under the tab Sexual Misconduct Resources (<https://www1.ucdenver.edu/offices/equity/support-resources/sexual-misconduct-resources/>).

**Please note that if some or all of this evidence is unavailable or does not exist, you are still encouraged to report a sexual assault. The lack of evidence does not preclude an investigation from taking place.**

### C. Confidential Reporting Options

The University offers access to confidential resources for individuals who are unsure about whether to report Prohibited Conduct or are seeking counseling or other emotional support in addition to (or without) making a report to the University. Section Support and Resources page (<https://www1.ucdenver.edu/offices/equity/support-resources/>), identify confidential and other resources, both at the University and in the surrounding community. See Section VIII for CU Denver | CU Anschutz on- and off-campus resources.

### D. Supportive Services and Assistance including Protective Orders

When an individual notifies the OE (either directly or through a responsible employee, advocate, third party, or other) that they have experienced conduct prohibited by the Policy, the OE will provide referral information as needed (whether or not there is a formal complaint or participation in a formal grievance process, formal adjudication process, or other resolution process) in accessing on- and off-campus services, including but not limited to counseling, academic assistance, housing, mental health services, victim advocacy, legal assistance, visa and immigration services, assessments for no contact orders, and/or forensic sexual assault nurse examiner (SANE) exams.

For a written summary of options and resources available to any person reporting Prohibited Conduct, please refer to this PDF document on the OE website: <https://www1.ucdenver.edu/offices/equity> (<https://www1.ucdenver.edu/offices/equity/>).

### E. Orders of Protection, Restraining Orders, or Similar Lawful Orders

Complainants who are interested in obtaining an Order of Protection, or any other order issued by a court, must pursue those options on their own behalf. Restraining orders are obtained through the court with applicable jurisdiction. More information on obtaining a restraining order in Colorado is located in the State of Colorado County Court Restraining Order Brochure: <https://www.courts.state.co.us/userfiles/File/Media/Brochures/restraining.pdf>.

The Phoenix Center at Auraria (PCA) can assist individuals free of charge with the process of obtaining a restraining order. CU Denver | CU Anschutz complies with Colorado law in recognizing orders of protection. Any person who obtains an order of protection from Colorado or any other state should provide a copy to the Auraria Police Department (for those on the Auraria Campus) and/or the University of Colorado Denver Police Department (for those on the CU Anschutz) and the Title IX Coordinator or designee.

## Privacy, Confidentiality, and the University's Obligation to Provide a "Safe and Non-Discriminatory Environment"

**Privacy and confidentiality have distinct meanings.**

**Privacy:** Means that information related to a report of Prohibited Conduct will be shared with a limited number of individuals on a "need to know" basis in order to assist in the active review, investigation, resolution of the report, and related issues. All University employees who are involved in potential response to a report receive specific training and guidance about safeguarding private information in accordance with applicable laws.

The privacy of student education records will be protected in accordance with the University's policy for compliance with the Family Educational Rights and Privacy Act (FERPA) and state law protections. Access to personnel records is restricted in accordance with University policy and applicable laws.

**Confidentiality:** Means that information shared by an individual with designated campus or community professionals cannot be revealed to any other person without express permission of the individual, or as otherwise permitted or required by law. Those campus and community professionals who have the ability to maintain confidential relationships include health care providers, mental health professionals, the sexual assault or domestic violence complainant advocate, attorneys, and ordained clergy, all of who normally have privileged confidentiality that is recognized by Colorado state law. The Title IX Coordinator has also designated the Ombuds staff serving in their capacity as a confidential resource for CU Denver | CU Anschutz campus. These individuals are prohibited from breaking confidentiality unless (i) given permission to do so by the person who disclosed the information; (ii) there is an imminent threat of harm to self or others; (iii) the conduct involves suspected abuse of a minor under the age of 18; or (iv) as otherwise required or permitted by law or court order.

### A. Confidential Resources and Privacy

Confidential Resources/Independent Reporting Obligations –The University supports the use of confidential resources for all parties, for any reason, including support for medical assistance, counseling, crisis intervention, advocacy, and assistance with legal, housing, and financial matters. Information shared with confidential resources is not disclosed to any party outside of the resource(s) with limited exceptions as defined by law or policy of the resource.

Employees who are confidential resources are not required to report Prohibited Conduct under the Policy. A person who is a confidential resource under the Policy may have an independent obligation to report some forms of criminal conduct to law enforcement officials. Any person who is a confidential resource may consult with campus legal counsel to determine whether an independent reporting obligation exists.

### B. Responsible Employees

All members of the University community may report Prohibited Conduct. Reporting allows the University to undertake investigations when appropriate, but also allows the University to inform those who have been involved of supportive measures and to facilitate access to those

services. Reporting also allows the University to identify institutional risks, increase the effectiveness of its training programs, and identify the need for additional services that will protect the University community from harm. The University views reporting of Prohibited Conduct as fundamental to its ability to provide a campus environment that allows equal access to educational and employment opportunities.

### 1. Reporting Requirements

- a. Responsible employees must report prohibited conduct. Many members of the University community, generally including faculty and members of the administration with supervisory responsibilities, are responsible employees, who must promptly report Prohibited Conduct as set forth in the Policy and these Procedures to the Title IX Coordinator or designee.
- b. Responsible employees means any employee who: (1) has the authority to hire, promote, discipline, evaluate, grade, formally advise or direct faculty, staff, or students; (2) has the authority to take action to redress Prohibited Conduct; or (3) has been given the duty or reporting incidents of sexual violence or any other misconduct by students to the Title IX Coordinator.
- c. Any responsible employee who witnesses or receives a written or oral report alleging that a member of the University community has been subjected to or has committed an act of Prohibited Conduct must promptly report the allegations to the Title IX Coordinator or designee. Members of the University community include students, faculty, staff, contractors, patients, visitors to campus, volunteers and employees of affiliated entities. Because the University may have the ability to address or prevent future Prohibited Conduct, the obligation to report exists independently of whether the individual who was subjected to or committed an act of Prohibited Conduct is currently enrolled or employed at the University.
- d. The responsible employee is required to promptly report to the Title IX Coordinator or designee all known details about the alleged Prohibited Conduct, including:

1. Name(s) of the complainant(s);
2. Name(s) of the respondent(s);
3. Name(s) of any alleged witnesses; and
4. Any other relevant facts, including the date, time, and specific location of the alleged incident.

If the responsible employee does not know all of the above details, the responsible employee must still make a report with the available information. If the responsible employee is unable to provide this information at the time of making an initial report, but later becomes aware of additional information, the responsible employee must supplement the prior report.

- e. Responsible employees employed by University law enforcement are required to report pursuant to this section unless the information is otherwise excluded by state or federal law (for example, identifying information for the complainant and/or information related to juveniles).
- f. In many instances, it may not be immediately apparent whether a person is a member of the University community or whether the alleged Prohibited Conduct occurred in the course of an educational program or activity of the University. Rather than conduct their own inquiries to determine whether these conditions exist, responsible employees should report potential Prohibited Conduct to the Title IX Coordinator or designee to allow a preliminary inquiry to occur.
- g. Responsible employees are not required to report information disclosed during an individual's participation as a subject in an Institutional Review Board-approved human subjects research

protocol. Institutional Review Boards (IRB) may, in appropriate cases, require researchers to provide reporting information to all subjects of IRB research.

- h. Responsible employees who receive information related to Prohibited Conduct in the course of serving in the capacity as Ombuds, as designated by the University, are not required to report to the Title IX Coordinator. These responsible employees must report Prohibited Conduct disclosed to them when they are not serving in the capacity as Ombuds.
- i. Responsible employees who receive information related to Prohibited Conduct in the course of providing professional services within a privileged relationship, such as health care providers or counselors, are not required to report to the Title IX Coordinator. These responsible employees must report Prohibited Conduct disclosed to them when they are not providing professional services within a privileged relationship. These responsible employees may also have independent professional obligations to report some forms of criminal conduct to law enforcement officials. Any responsible employee may consult with campus legal counsel to determine whether an independent reporting obligation exists.
- j. A responsible employee does not satisfy the reporting obligation by reporting Prohibited Conduct to a supervisor or University personnel other than the Title IX Coordinator or designee.
- k. Responsible employees are not required to report Prohibited Conduct to which they have been personally subjected to the Title IX Coordinator, but are nonetheless encouraged to report.
- l. Communications of Prohibited Conduct to a "responsible employee" are not confidential, and these employees must report Prohibited Conduct to the Title IX Coordinator or designee when it is disclosed to them.

### 2. Reporting by Students and Other Members of the University Community Who are Not Responsible Employees

The University encourages all members of the University community, even those who are not defined as responsible employees, to report Prohibited Conduct to the Title IX Coordinator or designee.

### C. Privacy and Information Disclosure

The University will not disclose the identity of any individual who has made a report or complaint of sex discrimination, including any individual who has made a report of filed a formal complaint of Prohibited Conduct, any complainant, any individual who has been reported to be the perpetrator of sex discrimination, any respondent, and any witness, except as may be permitted by law, or to carry out an investigation, hearing, or judicial proceeding related to the Policy. This may require sharing information, including identification information, between internal University offices.

#### 1. Confidential Resources

See Section VIII for CU Denver | CU Anschutz resources.

#### 2. Clery Act Reporting

Those persons who are "Campus Security Authorities" for purposes of crime reporting under the Clery Act may find a summary of their obligations at:

- CU Denver (<https://www.ucdenver.edu/police/clery-act/>)
- CU Anschutz Medical Campus (<https://www.ucdenver.edu/police/clery-act/>)

### D. Formal Complaints by Title IX Coordinator and Overriding Factors

If a complainant has disclosed an incident of Prohibited Conduct, but wishes to maintain privacy and does not wish to initiate the grievance process, the Title IX Coordinator or designee must discuss the availability

supportive measures with the complainant, describe the process for filing a formal complaint, and explain that the University prohibits retaliation. The Title IX Coordinator or designee will further explain the steps the University will take to prevent retaliation if the individual participates in a grievance process and will take responsive action if it occurs.

If, having been informed of the University's prohibition of retaliation and its obligations to prevent and respond to retaliation, the complainant would still like to maintain privacy or does not want to file a formal complaint initiating the grievance process, the Title IX Coordinator or designee will weigh that request against the University's obligation to provide a safe, non-discriminatory environment for all students, faculty, and staff. In making this determination, the Title IX Coordinator or designee will consider a range of potentially overriding factors that would cause the Title IX Coordinator or designee to file a formal complaint and initiate a grievance process, including the following:

1. The risk that the respondent will commit additional action of sexual violence or other violence;
2. The seriousness of the alleged misconduct, including whether the respondent threatened further sexual or other violence against the complainant or others, whether the alleged misconduct was facilitated by the incapacitation of the complainant, or whether the respondent has been found responsible in legal or other disciplinary proceedings for acts of sexual or other violence;
3. Whether the alleged misconduct was perpetrated with a weapon;
4. Whether the complainant is a minor;
5. Whether the University possesses means other than the complainant's testimony to obtain relevant evidence of the alleged misconduct (e.g., security cameras or personnel, physical evidence); and
6. Whether the alleged misconduct reveals a pattern of perpetration at a given location or by a particular group.

The decision to file a formal complaint by the Title IX Coordinator or designee and initiate the formal grievance process pursuant to the Policy will be on a case-by-case basis after an individualized and thoughtful review.

Nothing in this section limits the Title IX Coordinator or designees from responding to the alleged conduct in a manner other than investigation or adjudication that the Title IX Coordinator or designee may determine is appropriate under the circumstances, for example with supportive measures, referral to other offices, or consulting with University officials as appropriate, including but not limited to the University of Colorado Police Department, CU Denver or CU Anschutz CARE Team, CU Denver | CU Anschutz FAST Team, Office of Student Conduct and Community Standards, or CU Denver Housing and Dining. Additionally, nothing in the override analysis limits the authority to initiate or impose disciplinary action as necessary.

The Title IX Coordinator or designee may also determine that a report to the relevant law enforcement agency is warranted given the factors above, despite an individual's request for privacy. The OE will consider the range of factors listed above in making the determination to report to law enforcement. In those instances, the OE will make a reasonable effort to notify potential complainants prior to reporting to law enforcement. If the University honors the individual's request for privacy, the University's ability to meaningfully investigate the incident may be limited, and disciplinary action may not be possible.

## E. Disclosure of Findings of Sexual Misconduct

The University recognizes that third parties (either employers and/or institutions receiving transferring students) may have a legitimate interest in knowing whether a University employee or student has been found responsible for engaging in Prohibited Conduct. In the event that, after a grievance process and any rights of appeal have been completed, an employee or student has been found responsible for engaging in Prohibited Conduct, the University may confirm upon inquiry from a potential employer, licensing or credentialing agency, or institution that the employee or student has been found responsible for violating the Policy subject to applicable state and federal laws (e.g., FERPA) regarding such disclosures. As required by the Colorado Open Records Act, the University shall not release any records related to the investigation of Prohibited Conduct finding of sexual misconduct unless otherwise permitted by law.

## Resolution Procedures

The University does not tolerate and will be responsive to any report or complaint of "Prohibited Conduct" listed in these Procedures and is committed to providing prompt, fair, impartial, and equitable resolutions of any complaint that the University knows, or in the exercise of reasonable care should have known, about. The primary concern is the safety of all University community members. The University, through the OE, will take steps to prevent the recurrence of any Prohibited Conduct and remedy any discriminatory effects on the complainant and others if appropriate. The following procedures will apply to resolution of all reports of complaints of Prohibited Conduct:

### A. Overview of Resolution Procedures and Options

The University has authority to conduct at least a preliminary inquiry upon receiving a report or complaint alleging Prohibited Conduct. A preliminary inquiry may include, but is not limited to, evaluating whether the report or complaint implicates a policy enforced by the OE, whether the complaint and parties are within the jurisdiction of the OE, and whether the report or complaint presents a safety threat such that the OE must report the concern to law enforcement. The OE shall then determine the most appropriate means for addressing the report or complaint. Options include, but are not limited to:

1. Formal Grievance Process. See Section VI (B) through (H) below.
2. Policy Education Remedies. See Section VI(I) below.
3. Preliminary Inquiry: Determining that the facts of the complaint or report, even if true, would not constitute a violation of the Policy and closing the matter following a preliminary inquiry.
4. No limitation on existing authority: Referring the matter to an employee's appointing/disciplinary authority or supervisor. These Procedures do not limit the authority of a disciplinary authority to initiate or impose disciplinary action as necessary.
5. Other referral: Determining a complaint does not fall within the jurisdiction of the Policy and referring the complaint to appropriate office(s) on campus best suited to address the reported concerns.

## B. Initiation of the Grievance Process, Including Filing and Evaluation of a Formal Complaint

### 1. Formal Complaint Required to Initiate Formal Grievance Process

An individual (referred to as the complainant) or Title IX Coordinator or designee must file a document alleging a violation of misconduct under the Policy against an individual (referred to as the respondent) for the University to initiate a formal grievance. The formal complaint must contain the complainant's or Title IX Coordinator's physical or digital signature. The formal complaint form is available on the OE's website.



A complainant who reports allegations of misconduct with or without filing a formal complaint may receive supportive measures. See Section III(D).

## 2. Who May File a Formal Complaint

To initiate the grievance process under the Policy, either the complainant or the Title IX Coordinator or designee must file and sign a formal complaint.

a. Title IX Sexual Misconduct: To file a formal complaint, a complainant must be participating in or attempting to participate in the University's education program or activity. "Attempting to participate" can include a complainant who (1) is applying for admission or employment; (2) has graduated from one program but intends to apply to another program and/or intends to remain involved with the University's alumni programs or activities; or (3) has left school because of Sexual Misconduct but expresses a desire to re-enroll. A complainant who is on a "leave of absence" may also be participating or attempting to participate in a University education program or activity.

b. Sexual Misconduct: To file a formal complaint, a complainant may or may not be a member of the University community who alleges to be a victim of conduct that would violate the Policy.

Complainants are encouraged to meet with an investigator(s) prior to filing a formal complaint, but are not required to do so.

## 3. Evaluation of a Formal Complaint

Once a formal complaint has been filed, the Title IX Coordinator or designee will evaluate whether the conduct alleged in the formal complaint, if proved, would constitute a violation of the Policy. If additional information is needed to evaluate jurisdiction, the Title IX Coordinator or designee will make reasonable efforts to obtain that information.

The Title IX Coordinator or designee will notify the complainant if additional time is needed to consider the complaint, such as when gathering additional information is necessary to determine whether dismissal is appropriate.

The OE may, but is not required to, dismiss a formal complaint at any time during the investigation if the complainant notifies the Title IX Coordinator in writing that the complainant would like to withdraw the formal complaint or any allegations therein, if the respondent is no longer enrolled or employed at the University, or if specific circumstances prevent the University from gathering evidence sufficient to reach a determination as to the formal complaint or the allegations therein (discretionary dismissal).

a. Title IX Sexual Misconduct: The Title IX Coordinator or designee must dismiss a formal complaint, subject to appeal, if the alleged conduct would not constitute Title IX Sexual Misconduct or the University lacks jurisdiction under the requirements of Title IX. If the Title IX Coordinator or designee dismisses a formal complaint pursuant to these Procedures, the Title IX Coordinator or designee will consider whether the conduct alleged in the formal complaint violates other provisions of the Policy and any other University or campus policies, procedures, or conduct codes.

b. Sexual Misconduct: The Title IX Coordinator or designee must dismiss a formal complaint, subject to appeal, if the alleged conduct would not constitute Sexual Misconduct or the University lacks jurisdiction to pursue the matter. If the Title IX Coordinator or designee dismisses a formal complaint pursuant to these Procedures, the Title IX Coordinator or designee will consider whether the conduct alleged in the formal complaint constitutes a

violation of any other university or campus policies, procedures, or conduct codes.

If the alleged conduct would not violate the Policy, the Title IX Coordinator or designee will dismiss the formal complaint with regard to that conduct (mandatory dismissal).

The Title IX Coordinator or designee will notify both the complainant and the respondent of the complaint either by issuing a Notice of Allegations and Investigation. See Section IV(C) or a Notice of Complaint and Dismissal, which will include a summary of the allegations reported and an explanation as to the reason for the dismissal from the Formal Grievance Process.

## 4. Appeal of Dismissal of Formal Complaint

If a formal complaint is dismissed, either party may appeal. To file an appeal of the dismissal, the complainant or respondent must submit the written appeal to the Title IX Coordinator or designee within **five business days** of the Notice of Complaint and Dismissal. The appeal must include an explanation as to why the alleged misconduct, if true, would violate the Policy and why the formal complaint should not be dismissed.

An administrator within the OE, separate from the Title IX Coordinator or decision-maker for the initial dismissal, will consider the appeal and issue a determination in writing to both parties either upholding the appeal or overturning the dismissal within **five business days**.

## C. Notice of Allegations and Investigation

If a formal investigation is commenced, the respondent and complainant shall receive a Notice of Allegations and Investigation. The written notice may be sent to the respondent and complainant by email or via U.S. mail to the permanent address appearing in the University's information system or the address appearing in a police report, or may be physically delivered. Notice will be considered furnished on the date of physical delivery or on the date emailed. For employee respondents, the employee's supervisory upline may receive a copy of the written Notice of Allegations and Investigation. This may include the Chancellor and the employee's appointing/disciplinary authority, as well as Human Resources.

The OE requests that the respondent contact the investigator(s) within five business days of the issuance of the notice to schedule a meeting. If, in the course of an investigation, a complainant alleges additional violations or the Title IX Coordinator or designee decides to investigate additional allegations about the complainant or respondent that are not included in the initial Notice of Allegations, the OIEC will issue an Amended Notice of Allegations to both parties.

The Notice of Allegations and Investigation (and any Amended Notices of Allegations and Investigation) will include:

1. The identity of the parties involved in the incident;
2. The specific section(s) of the Policy allegedly violated;
3. The conduct allegedly constituting Prohibited Conduct;
4. The date and location of the alleged incident, to the extent known and available;
5. Information about the University's grievance process;
6. A statement that the respondent is presumed not responsible for the alleged conduct and that a determination regarding responsibility is made at the conclusion of the grievance process;
7. Information about the provisions that prohibit knowingly making false statements or knowingly submitting false information during the grievance process;



8. Information that the parties have equal opportunity to inspect and review evidence; and
9. Information that the complainant and respondent may have an advisor of their choice, including an attorney. The advisor may not engage in any conduct that would constitute harassment or retaliation against any person who has participated in an investigation and may be denied further participation for harassing or retaliatory conduct.

The Notice of Allegations and Investigation may also include information concerning any interim protective measures, which may include no-contact orders or location or campus exclusions, as well as other supportive measures.

## D. General Investigation Process

The OE's grievance process and Procedures provide for equitable resolution of any formal complaint of Prohibited Conduct within an **average of 90 calendar days**, except that such time frame may be extended for good cause with prior written notice to the complainant and respondent of the delay and reason for the delay. The OE will also provide the complainant and respondent with regular written updates on the status of the investigation throughout the process until conclusion. A formal grievance process includes four major stages: (1) filing and evaluation of the formal complaint, (2) investigation, investigative report, (3) hearing and determination regarding responsibility (including sanctions, if applicable), and (4) appeal, if applicable and described below.

### 1. Investigators

The investigative process will be conducted by trained officials who do not have a conflict of interest or bias for or against complainants or respondents generally. An official shall recuse themselves from any role in the grievance process in those instances where the official believes that their impartiality might be reasonably questioned by an independent, neutral observer due to the official's personal bias or prejudice against the complainant or respondent, or against complainants or respondents generally, or where the official has a personal or professional relationship with one of the parties that would adversely affect the official's ability to serve as an impartial finder of fact.

Investigations will be conducted by staff who are appropriately trained and have qualifications and experience that will facilitate a prompt, fair, equitable and impartial resolution. The Title IX Coordinator or designee shall ensure that OE Investigators and other members involved in the formal grievance process will receive annual training on issues related to sexual assault, intimate partner abuse, stalking, sexual harassment, and retaliation. The Title IX Coordinator or designee shall determine if one or more Investigators shall be assigned to each case depending on the specific circumstances and as warranted.

#### a. Outside Investigators

The Title IX Coordinator or designee may also designate other individuals (either from within the University, including an administrator, or from outside the University) to conduct or assist with an investigation. Circumstances which may warrant such outside resolutions include, but are not limited to, conflict of interest, allegations of bias, or workload. The Title IX Coordinator or designee retains the discretion to determine whether the use of outside investigator(s) is warranted and reasonable given the circumstances and information known at the time. Outside investigator(s) shall have adequate training, qualifications, and experience that will, in the judgment of the Title IX Coordinator or designee, facilitate a prompt, fair, and impartial resolution. Any outside investigator(s)

designated to address an allegation must adhere to the requirements of these Procedures and confer with the Title IX Coordinator or designee on a regular basis about the progress of the investigation.

## 2. Formal Investigative Process

The formal Investigative process is the procedure the OE uses to investigate allegations of Prohibited Conduct and to determine whether an individual more likely than not engaged in conduct that violates the Policy. Individuals found responsible for violating the Policy are subject to sanction, up to and including expulsion or termination of employment.

### a. Information Gathering During Investigation

After the Notice of Allegations and Investigation has been issued to the parties, the OE's investigator(s) will seek to obtain all available evidence directly related to the allegations at issue.

During the course of the investigation, investigator(s) interview the complainant(s), respondent(s), and witnesses separately.

The parties and witnesses may have an advisor of their choosing, including an attorney, advocate, or other person, to provide support and advice throughout the formal investigation process, including but not limited to, being present for any meetings with the OE personnel. The advisor is not authorized to participate instead of the complainant or respondent. The advisor may not engage in any conduct that is disruptive to the meeting or interview, or that would constitute harassment or retaliation against any person who has participated in an investigation. Advisors may be denied further participation for harassing or retaliatory conduct.

The complainant, respondent, and witnesses are expected to respond to the investigator(s) request to schedule an interview or to provide other evidentiary materials within a timely manner, generally **within five business days** of the investigator's request. If a party or witness fails to respond within a reasonable time, the investigator may continue the investigation without the benefit of information the party or witness might have provided.

The OE will provide, to a complainant, respondent, or witness whose participation is invited or expected, written notice of the date, time, location, participants, and purpose of all investigative interviews, or other meetings, with sufficient time for the party to prepare to participate.

Parties may suggest questions to be posed by the investigator(s) during interviews to other parties and/or witnesses during the course of the investigation. The investigator(s) may decline to ask a question when the question is not reasonably calculated to lead to the discovery of probative evidence, when the probative value is outweighed by the danger of unfair prejudice, or in consideration of undue delay or needless presentation of cumulative evidence. Questions about a complainant's prior sexual history are normally not probative and will be asked only when directly relevant to the incident where the alleged Prohibited Conduct occurred. See Section II.

The University, and not the parties, holds both the burden of proof and the burden of gathering evidence sufficient to reach a determination regarding responsibility for Prohibited Conduct.

Both parties may present witnesses, including fact and expert witnesses, and other inculpatory and exculpatory evidence. Neither party is restricted from discussing the allegation under investigation or from gathering or presenting relevant evidence. The OE will also contact individuals who may have potentially relevant information related to

allegations under investigation even if these individuals are not proposed by the parties.

The OE will not use any party's records that are made or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in the professional's or paraprofessional's capacity, or assisting in that capacity, and which are made and maintained in connection with the provision of treatment to the party, unless the University obtains that party's voluntary, written consent to do so for a grievance process.

The investigator(s) will prepare a written summary of each interview taken to include complainant(s), respondent(s), and witnesses. The investigator will send the summarized interview to the individual party or witness for a review of accuracy. Unless the complainant(s), respondent(s), and witness requests additional time, the summarized interview will be deemed accurate if the party or witness does not provide feedback on the statement within **two business days** of the investigator emailing it to the party or witness.

Information may be developed during the course of the investigation that indicates additional Policy violations to those initially identified in the Notice of Allegations and Investigation. In such circumstances, the investigator shall review such additional potential violations with the Title IX Coordinator or designee, who shall assess whether reasonable cause exists to believe the respondent engaged in the newly-discovered Prohibited Conduct. If so, the Title IX Coordinator or designee shall send a written Amended Notice of Investigation which includes relevant additional information.

Preliminary and Final Investigation Reports may be submitted to the Office of University Counsel to review for legal sufficiency.

#### *b. Preliminary Investigation Report*

When the investigator determines that the investigation is reasonably complete, the investigator will prepare a preliminary investigation report that includes the directly related evidence. The evidence subject to inspection and review in an electronic or a hard copy, along with the preliminary investigation report will be available for review by the complainant(s), the respondent(s), and each party's advisor. The preliminary investigation report will include:

- A description of the incident;
- Procedural history and jurisdiction;
- Factual agreements and disputes;
- Summaries of the interviews conducted;
- Summaries of other information.

The complainant(s) and respondent(s) will have the opportunity to respond to the information in the preliminary investigation report with further information, but only as it pertains to factual disputes or clarifying information they provided. Parties are unable to change the information provided by other parties or witnesses; rather, they may respond to the information. If either the complainant(s) or respondent(s) are reminded of further evidence they have, they may provide this to the investigator(s). Additionally, the parties may:

- Provide any additional information that they believe is relevant to the investigation or to seek clarification from the investigator on aspects of the draft investigation report;

- Identify any new witnesses who should be interviewed (including a description of what topics/issues the witness should be asked to address and why this is necessary for the investigation);
- Identify any additional evidentiary materials that should be collected and reviewed to the extent that such items are reasonably available (e.g., text messages, social media postings, etc.), understanding that the investigator lacks the power to subpoena evidence; and,
- Identify any information that they believe was inappropriately included or excluded in the draft report.

While the University will not restrict the ability of the parties to discuss the allegations or gather evidence, the University will seek to ensure that the parties and their respective advisors, advocates or support persons as applicable maintain the privacy of disclosed information, particularly in electronic and/or hard copy format. Parties receiving such private information should only distribute it to those individuals with a legitimate need to know. The University will continue to enforce prohibitions against harassment and retaliation.

The parties will have at least **10 business days** to submit a written response to the preliminary investigation report to the investigator(s). The investigator(s) will consider the parties' responses, if any, prior to completing the final investigative report.

Where the investigator(s) receive information that warrants further investigation or review, the investigator(s) may extend the investigation in order to collect additional information. If an investigation is extended for this purpose, the parties will be notified in writing. Following such an extended investigation, the investigator(s) will issue an amended preliminary investigation report to include newly gathered information being considered.

The decision to extend the investigation shall be at the discretion of the investigator(s) and made in consultation with the Title IX Coordinator or designee.

#### *c. Extension Request - Response to Preliminary Investigation Report*

Should a complainant or respondent, intending to provide a response to the preliminary investigation report, believe they do not have adequate time to prepare their written response, a written request for extension of time may be submitted to the investigator(s). The request must be submitted within the **10 business day** deadline for responding to the preliminary investigation report, and should include the rationale for requesting the extension along with the proposed date by which all response documents will be submitted. Requests for extension of time will be considered on their merits and will not automatically be granted. When an extension is granted, other parties will be notified and provided the same extension, if granted.

#### *d. Requests to Inspect the Investigative File*

Requests to inspect directly related information gathered by the investigator(s) can be made at any time during the investigative process. The opportunity to inspect the investigative file will be provided equally to both parties. Requests must be made in advance and in writing (via email) to the investigator(s). The investigator(s) will arrange for the viewing of information contained in the file within a reasonable amount of time following receipt of such a request. Access to information contained in the investigative file shall be made available in person or via electronic means.

#### *e. Final Investigation Report*

After the preliminary investigation report has been reviewed by the parties, and following the completion of any additional investigation if applicable, the investigator(s) will incorporate any responses to the preliminary investigation report to create the final investigation report. This report will fairly summarize relevant evidence without reaching any findings of fact or conclusions.

The final investigation report will be provided to each party and their advisor(if any) and shared with the Title IX Coordinator and Hearing Officer at least ten business days prior to the hearing for the parties' review and response and for the purpose of the live hearing.

### **E. Hearing and Determination Regarding Responsibility**

A trained Hearing Officer will preside over a live hearing. Nothing precludes the OE from utilizing a single decision-maker (Hearing Officer) or a panel of decision-makers (including the Hearing Officer) for the hearing and determining responsibility.

Each party may bring one advisor of their choosing to the live hearing to conduct cross-examination, with prior notice to the OE that the advisor will attend and the advisor's name. The OE will inform both parties of the identity of the other party's advisor. If a party does not have an advisor present at the live hearing, the OE will provide that party an advisor, without fee or cost.

Upon notice that a party needs an advisor, the OE will endeavor to assign an advisor at least **ten business days** prior to the scheduled pre-hearing conference so the advisor may prepare. The advisor provided by the OE to conduct cross-examination on behalf of that party may be, but is not required to be, an attorney.

Live hearings will be conducted virtually, with parties (and their respective advisors) located in separate locations. Technology will enable the Hearing Officer or panel of decision-makers and parties to simultaneously see and hear the party or witnesses answering questions. Hearings are closed to the public.

The Hearing Officer must create an audio or audiovisual recording, or transcript, of any live hearing and the University must make it available to the parties for inspection and review.

#### **1. Pre-Hearing Conference**

To effectuate an orderly, fair, and respectful hearing, the Hearing Officer will convene a pre-hearing conference with each party and party's advisor to plan for the hearing. Attendance is required, at minimum, by each party's advisor. The parties will be provided the name(s) of the Hearing Officer and panelists, if applicable, prior to the pre-hearing conference.

Prior to the pre-hearing conference, the parties will provide the Hearing Officer with a list of witnesses they may call and evidence they may use during the hearing.

At the pre-hearing conference, the Hearing Officer and the advisors will discuss, at minimum, the following topics:

- Identification of each party's advisor who will be attending the live hearing;
- The procedures to be followed at the live hearing;
- Identification of witnesses who will appear at the hearing;
- Identification of exhibits that will be presented for the cross-examination process

#### **2. Hearing Decorum**

The Hearing Officer is responsible for maintaining an orderly, fair, and respectful hearing. The Hearing Officer will direct the order of the proceeding and may engage in direct questioning of parties and witnesses during the hearing.

The Hearing Officer has broad discretion and authority to respond to disruptive or harassing behaviors, including adjourning the hearing or excluding the offending individual. The following rules apply:

- Advisors must be respectful of all participants and the hearing process. Abusive, intimidating, and harassing conduct will not be tolerated;
- Advisors may only make objections to questions on the grounds of relevance or to assert a privilege. Advisors must signal for the Hearing Officer's attention, calmly state their objection, and wait for a determination;
- Repetitive or redundant questioning may be deemed both lacking in relevancy and harassing;
- Should an advisor need to confer with their party, they may request that the Hearing Officer grant them a recess. A mid-hearing conferral may not exceed 10 minutes. Every effort should be made to conduct conferrals privately and to not be overly disruptive;
- Parties and advisors may not create audio or audiovisual recordings of the hearing;
- Advisors and parties must acknowledge the rules of decorum in advance of a hearing, including an acknowledgement that failure to abide by the rules may result in adjournment of the hearing and a postponement until the party whose advisor failed to abide by the rules may secure a new advisor.

#### **3. Cross-Examination Procedure**

At the live hearing, the Hearing Officer must permit each party's advisor to ask the other party and any witnesses all relevant questions and follow-up questions, including those challenging credibility. Each party's advisor must ask questions directly, orally, and in real time. A party's advisor may only ask a party or witness relevant questions.

A relevant question seeks information that has any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the information sought in the question.

Before a complainant, respondent, or witness answers a cross-examination or other question, the Hearing Officer must first determine whether the question is relevant and explain any decision to exclude a question as not relevant.

Questions and evidence about the complainant's sexual predisposition or prior sexual behavior are not relevant, unless such questions and evidence about the complainant's prior sexual behavior are offered to prove that someone other than the respondent committed the conduct alleged by the complainant, or if the questions and evidence concern specific incidents of the complainant's prior sexual behavior with respect to the respondent and are offered to prove consent.

#### **4. Submission to Cross-Examination**

Any individual (complainant, respondent or witnesses) may choose to not participate in the live cross-examination hearing. If a complainant or respondent declines to submit to cross-examination, the party's advisor may still ask questions on their behalf. The Hearing Officer cannot draw an inference about the determination regarding responsibility based

solely on a party's or witness's absence from the live hearing or refusal to answer cross-examination or other questions.

- **Title IX Sexual Misconduct:** If a party or witness does not submit to cross-examination at the live hearing, the Hearing Officer must not rely on any statement of that party or witness in reaching a determination regarding responsibility.
- **Sexual Misconduct:** The Hearing Officer is not required to exclude or disregard any prior statement based on a party or witness who does not submit to cross-examination at the live hearing, and may instead decide how much weight to give the prior statements, weighed in light of all the evidence in the case and the issues to be decided.

### 5. Determination Regarding Responsibility

Consistent with the standard of proof in other conduct proceedings, the Hearing Officer and panelist, if applicable, must apply the preponderance of the evidence standard when making findings and conclusions as to whether the Policy has occurred. A preponderance of the evidence exists when the totality of the evidence demonstrates that an allegation of Prohibited Conduct is more probably true than not. If the evidence weighs so evenly that the Hearing Officer and panelists, if applicable, is unable to say that there is preponderance on either side, the Hearing Officer and panelists, if applicable, must determine that there is insufficient evidence to conclude there has been a violation of the Policy.

In applying the preponderance of the evidence standard, the Hearing Officer and panelists, if applicable, may consider both direct and circumstantial evidence. The Hearing Officer and panelists, if applicable, may determine the credibility of parties and witnesses and the weight to be given their statements, taking into consideration their means of knowledge, strength of memory and opportunities for observation, the reasonableness or unreasonableness of their statements, the consistency or lack of consistency of their statements, their motives, whether their statements are contradicted or supported by other evidence, any evidence of bias, prejudice or conflict of interest, and the person's manner and demeanor when providing statements.

It is the responsibility of the Hearing Officer, not the parties or the investigators, to make a determination based on the totality of the available information to determine whether or not the preponderance of the evidence has been met. Neither party bears a burden of proof. The ultimate determination of factual findings and responsibility rests with the Hearing Officer after full consideration of all available evidence.

The Hearing Officer must issue a written determination regarding responsibility that will be sent to the OE. The written determination regarding responsibility may be submitted to the Office of University Counsel to review for legal sufficiency prior to being issued to the parties.

The written determination must include:

- Identification of the allegations potentially constituting Prohibited Conduct;
- A description of the procedural steps taken from the receipt of the formal complaint through the determination, including any notifications to the parties, interviews with parties and witnesses, site visits, methods used to gather other evidence, and hearings held;
- Findings of fact supporting the determination;
- Conclusions regarding the application of the Policy to the facts;
- A statement of, and rationale for, the result as to each allegation, including a determination regarding responsibility, any disciplinary sanctions the University imposes on the respondent, and whether remedies designed to restore or preserve equal access to the

education program or activity will be provided by the University to the complainant; and

- The University's Procedures and permissible bases for the complainant and respondent to appeal.

In cases resulting in no Policy violation, the OE will provide the written determination to the parties simultaneously after it is prepared by the Hearing Officer. Both parties have the opportunity to appeal the written determination regarding responsibility. See Section VI(H).

In cases resulting in a Policy violation, prior to the issuance of the written determination to the parties, the Hearing Officer will refer the matter to the appropriate sanctioning authorities (for either a student or employee respondent) for a disciplinary sanction to be determined. See Section VI(F) and Section VI(G) below. After the sanction has been incorporated into the written determination regarding responsibility, the OE will provide the written determination and sanction to the parties simultaneously. Both parties have the opportunity to appeal the written determination, including the sanction, if applicable. See Section VI(H).

If the respondent is a student employee and the alleged misconduct occurs outside the employment capacity, the OE may determine that the respondent's supervisory upline has a legitimate need to know information related to the grievance process.

The determination regarding responsibility becomes final either on the date that the University provides the parties with the written determination of the result of the appeal, if an appeal is filed, or if an appeal is not filed, the date on which an appeal would no longer be considered timely.

The OE will also provide any applicable notices to the complainant following the conclusion of any subsequent corrective or disciplinary action pursuant to the State Personnel Board Rules for respondents who are classified employees and the Professional Rights and Duties procedure and Privilege and Tenure process for respondents who are faculty.

In the event that no Policy violation is found, there is no preclusion of discipline for other student or employee misconduct under applicable University policies, procedures, or codes of conduct.

## F. Sanctioning Process for Student Respondents

In cases where the Formal Grievance Process results in a determination that a student respondent is responsible for a Policy violation, the matter will be referred, with the written determination (prior to the inclusion of the sanction), to the Sanctioning Board prior to the issuance of a final written determination.

### 1. Student Sanctioning Board

The Sanctioning Board is composed of three members who are collectively authorized to impose sanctions for student respondents and to remedy the effects of the Prohibited Conduct. The Board shall decide by majority decision. For the grievance process, the Board will notify the Hearing Officer of the determined sanctions so that the Hearing Officer can include them within the written determination.

The OE Coordinator of Remedies and Protective Measures or designee is a member and the Chair of the Sanctioning Board for student respondents and will appoint two additional University employees who are not affiliated with the OE to serve on the Sanctioning Board. University employees who serve on the Sanctioning Board will have



received appropriate training regarding the applicable policies and factors pertinent to the sanctioning decision.

#### *a. Factors Considered in Sanctioning*

The Sanctioning Board members conduct an individualized review, including review of the Hearing Officer's written Determination Regarding Responsibility, similarly situated cases, assessment of the factors below, and may review the entire file and consult as necessary with OE staff, Student Conduct and Community Standards, or any other University staff as needed in making a sanctioning determination.

Factors pertinent to a sanctioning decision may include, as applicable:

- Severity and/or pervasiveness of conduct and whether it escalated during the incident;
- The impact of separating a student from their education;
- Whether the complainant was incapacitated at the time of the conduct;
- Relationship between the parties, including degree of control of one party over another;
- Whether there was force/violence, weapons, or threats of force/violence;
- Any prior history of related criminal, conduct, or policy violations; including but not limited to the University Code of Conduct and any active disciplinary sanctions in place at time of the conduct;
- Impact of incident on complainants;
- Acceptance of responsibility by respondent; and
- On-going safety risk to complainant or community.

#### *b. Possible sanctions*

Sanctions may include one or more of the following:

- **Warning/Written Reprimand:** A warning/written reprimand is a written statement from the Board or designee that the behavior was inappropriate and that more serious action will be taken should subsequent infractions occur.
- **Educational Sanctions:** The student may be required to attend a class, evaluation, or program (e.g., alcohol or anger management classes or training on sexual misconduct or protected-class discrimination and harassment). This is not an exhaustive list but should serve as a reference for the types of educational sanctions that may be imposed.
- **Meeting with the OE Coordinator of Remedies and Protective Measures or designee:** The student may be required to meet with a University official to review the terms of the sanction and ensure compliance prior to eligibility to apply for readmission, as applicable.
- **Residence Hall Reassignment:** A student who resides in a residence hall is assigned to a different residence hall room or floor.
- **Residence Hall Termination:** A student's residence hall agreement is terminated through the OE process, and the student is prohibited from residing in any University residence on either a permanent or temporary basis. Specific exclusion from the residence halls may also be imposed.
- **Probation:** A student is placed on probation. Probation lasts for a specific period of time, and is implemented by semesters. Any violation of University policies or the conditions of probation committed during the probationary period will result in further disciplinary action.

- **Restriction or Denial of University Services:** The student is restricted from using or is denied specified University services, including participation in University activities.
- **Delayed Conferral of Degree:** The issuance of a student's diploma is delayed for a specified period of time.
- **Suspension:** The student is required to leave the University for a specific period of time. A suspension notation appears on the student's transcript until the period of suspension has expired and all other sanctions are complete. The student is required to apply for readmission to the University after their suspension period. Suspension from the University includes an exclusion from University property during the period of suspension. A suspension decision results in the student being suspended from all campuses of the University of Colorado system. Upon completion of the suspension, if the student wishes to return to the University, they must complete the re-admission process through the Office of Admissions.
- **Exclusion:** The student is denied access to all or a portion of University property. When a student is excluded from University property, that student may be permitted on University property for limited periods and specific activities with the permission of the OE Coordinator of Remedies and Protective Measures or designee. Should the student enter University property without permission, the police may charge the student with trespass.
- **Expulsion:** The student is required to permanently leave the University. A notation of expulsion remains permanently on the student's transcript. Expulsion from the University includes an automatic exclusion from University of Colorado property. An expulsion decision results in the student being expelled from all campuses in the University of Colorado.
- **Disciplinary Stop and Disciplinary Hold:** A disciplinary stop shall be placed on a student's record if they are suspended as the outcome of the OE proceedings. A disciplinary stop is honored by all University of Colorado campuses and prohibits a student from being admitted to any of the campuses and from registering for classes until the suspension period is over and the student has reapplied and has been re-admitted. A disciplinary hold may also be placed if a student fails to complete assigned sanctions, which has the same impact on a student's records and registration as described above. The disciplinary hold will not be removed until all sanctions are completed.
- **Additional Sanctions:** The Board has the discretion to impose any additional sanctions that may be warranted and appropriate given the circumstances of the case.

### **G. Sanctioning Process for Employee Respondents**

In cases where the Formal Grievance Process results in a determination that an employee respondent is responsible for a Policy violation or acted inappropriately or unprofessionally, the matter will be referred, with the written determination (prior to the inclusion of the sanction), to the appointing/disciplinary authority. If the respondent is a student employee and the alleged misconduct occurs outside the employment capacity, the OE may determine that the respondent's supervisory upline has a legitimate need to know information related to the case resolution. Any applicable sanctioning meeting pursuant to these Procedures does not replace any additional meetings that may be required under other applicable personnel processes (e.g., State Personnel Board Rules for classified employees; Professional Rights and Duties procedure and Privilege and Tenure process for faculty).



### 1. OE's formal recommendation to disciplinary authority

The Title IX Coordinator or designee will provide a formal recommendation to the appointing/disciplinary authority as to applicable sanctions. A formal recommendation will be consistent with the factors set forth below.

#### *a. Factors Considered in Sanctioning*

- Factors pertinent to a sanctioning decision may include, as applicable:
- Severity and/or pervasiveness of conduct and whether it escalated during the incident;
- Whether the complainant was incapacitated at the time of the conduct;
- Relationship between the parties, including degree of control of one party over another;
- Whether there was force/violence, weapons, or threats of force/violence;
- Any prior history of related criminal, conduct, or policy violations; including but not limited to the University Code of Conduct and any active disciplinary sanctions in place at time of the conduct;
- Impact of incident on complainants;
- Acceptance of responsibility by respondent; and
- On-going safety risk to complainant or community

### 2. Sanction Required

In order to remediate the effects of Prohibited Conduct, the appointing/disciplinary authority will impose sanctions. Sanctions for classified staff in the written determination may include either a corrective action or a notice of disciplinary action, issued pursuant to the State Personnel Rules.

The appointing/disciplinary authority will determine the type of sanctions in consultation with the Associate Vice Chancellor & Chief Human Resources Officer or designee, the Title IX Coordinator or designee, and any other administrative staff with a need to know.

The appointing/disciplinary authority may have access to the formal grievance process records and may consult with the adjudicative staff in order to determine action.

The Title IX Coordinator or designee will notify the Hearing Officer of the determined sanctions so that the Hearing Officer can include the sanction within the written determination.

Potential sanctions include:

- Letter of Expectation/Reprimand: A warning/written letter of expectation or reprimand is a statement from the disciplinary authority that the behavior was inappropriate and that more serious disciplinary action will be taken should subsequent infractions occur.
- Mandatory Training: The employee may be required to attend a training, class, or program as relevant to the misconduct.
- Demotion: The employee is demoted from their current position.
- Job Duty Modifications: The disciplinary authority may modify the employment responsibilities of the employee.
- Reduction in Salary/Ineligibility for Merit Increases: The employee's salary is reduced either permanently or temporarily, or the employee is not eligible for merit increases either permanently or temporarily.
- Ineligibility for Rehire: The employee is no longer eligible for employment at the University.

- Exclusion: The employee is denied access to all or a portion of University property. When an employee is excluded from University property, that employee may be permitted on University property for limited periods and specific activities with the permission of the University official or designee who imposed the exclusion. Should the employee enter University property without permission, police may charge the employee with trespass.
- Termination of Employment Contract or Termination of Employment: Pursuant to applicable laws and policies specific to the employee's status, the disciplinary authority recommends or terminates employment.
- Additional Sanctions: The disciplinary authority has the discretion to impose any additional sanctions that may be warranted and appropriate given the circumstances of the case.

## H. Appeals

Either the complainant or respondent may file a written appeal of the determination regarding responsibility. All appeals must be made in accordance with the Procedures outlined in this section.

Basis for appeal of a determination regarding responsibility:

- To determine whether there were procedural irregularities that affected the outcome of the matter;
- If new evidence that was not reasonably available at the time the determination regarding responsibility or dismissal was made that could affect the outcome of the matter;
- The Title IX Coordinator, investigators, or Hearing Officer, and panelists, if applicable, had a conflict of interest or bias for or against complainants or respondents generally or the individual complainant or respondent that affected the outcome of the matter.

In the appeal, both parties must have a reasonable, equal opportunity to submit a written statement in support of, or challenging, the outcome.

The decision-maker(s) for the appeal (Appeal Board) may not be the same Hearing Officer that reached the determination regarding responsibility or dismissal, the investigator(s), or the Title IX Coordinator. All Appeal Board members must be trained.

The Appeal Board will issue a written decision describing the result of the appeal and the rationale for the result. The appeal decision must be provided simultaneously to both parties.

### 1. How to File an Appeal and Timeframe

Appeals must be submitted in writing to the Title IX Coordinator or designee within **10 business days** after the determination regarding responsibility is issued. The appeal should indicate the specific basis for the appeal (see above), supporting arguments and documentation, and any other relevant information the appealing party wishes to include. The appealing party should be aware that all appeals are documentary reviews, and no interviews are conducted. Generally, appeals are determined solely on the merits of the documents submitted. Appeal documents therefore should be as complete and succinct as possible. All sanctions imposed in the case will not go into effect until either the deadline for filing an appeal passes and no appeal is filed or, if a timely appeal is filed, the appeal is decided, whichever comes first.

The appealing party may not present any new evidence unless the party can demonstrate that it could not, with reasonable diligence, have been discovered or produced during the course of the investigation.

## 2. Extension Request

Should an appealing party, intending to provide a response to the preliminary investigation report, believe they do not have adequate time to prepare their written response, a written request for extension of time may be submitted to the Title IX Coordinator or designee. The request must be submitted within the 10 business day deadline for responding to the preliminary investigation report, and should include the rationale for requesting the extension along with the proposed date by which all response documents will be submitted. Requests for extension of time will be considered on their merits and will not automatically be granted. When an extension is granted, other parties will be notified and provided the same extension, if granted.

## 3. Appeals Process and Appeals Board

The Title IX Coordinator or designee will notify the other party to the original complaint (complainant or respondent) in writing, and the party will be provided **five business days** to respond in writing to the appeal. The response should be sent to the Title IX Coordinator or designee. Neither party is required to respond to an appeal. Not responding to an appeal does not imply agreement with the appeal.

After the submission of all documentation related to the appeal, or the passage of the five-day deadline for response has passed, the Title IX Coordinator or designee will appoint University employees (who may include staff from the CU Boulder and Colorado Springs campuses) who are not otherwise affiliated with the OE at CU Denver | CU Anschutz to serve on the Appeal Board.

## 4. Appeal Decisions

Upon review of the appeal, the Appeal Board may:

- Uphold the initial decision in its entirety;
- Direct that there be reconsideration by the Hearing Officer (or a new Hearing Officer) based on the existing evidence; or
- Direct that there be re-investigation (by the same or different investigators) followed by a second live cross-examination hearing process conducted in accordance with the process outlined above.

The Board members shall not make new findings of fact. The Board shall review all documentation submitted, make the final decision upon appeal, and concurrently provide the parties with a written Notice of Appeal Decision within 15 business days of its receipt of all final documentation.

## I. Policy Education Remedies

The OE may determine that the most prompt and effective way to address a concern is through a Policy Educational Meeting. For example, the OE may resolve a report or complaint through a Policy Education Meeting if the alleged conduct, even if true, would not be considered prohibited conduct under the Policy.

The primary focus during a Policy Education Meeting remains the welfare of the parties and the safety of the campus community, but this process does not involve a written report or a determination as to whether the Policy has been violated. This type of approach provides the University with a “remedies-based” resolution option that allows the University to tailor responses to the unique facts and circumstances of an incident, particularly in cases where there is not a broader threat to individual or campus safety. In these cases, the OE may do one or more of the following:

- Provide interim or long-term supportive measures to the complainant and the respondent;

- Provide a referral to other campus-based resolution processes as appropriate for the specific facts of the case;
- Provide targeted or broad-based educational programming or training; and/or
- Conduct a Policy Education Meeting with the respondent to (1) discuss the behavior as alleged and provide an opportunity to respond; (2) review prohibited conduct under the Sexual Misconduct, Intimate Partner Violence, and Stalking Policy; (3) identify and discuss appropriate future conduct and behavior as well as how to avoid behavior that could be interpreted as retaliatory; (4) inform the complainant of the respondent’s responses if appropriate; and (5) notify Student Conduct and Community Standards or the respondent’s appointing or disciplinary authority of the allegations and responses if necessary, who will determine whether any other disciplinary action is appropriate.

The OE retains discretion to conduct a Policy Education Meeting. Additionally, the OE retains discretion to proceed with a Formal Grievance Process for allegations that, if proven true, would violate the Sexual Misconduct, Intimate Partner Violence, and Stalking Policy.

For allegations that would warrant a Formal Grievance Process, but the OE proceeded with a Policy Education Meeting because the complainant requested privacy or that no investigation or disciplinary action be taken and that request could be honored consistent with the factors and obligations of the OE as set forth in Section III, the OE will notify the complainant of the ability to end the Policy Education Meeting process at any time and to commence or resume a Formal Grievance Process.

## Responsibilities of the Title IX Coordinator

The Title IX Coordinator is responsible for overseeing reports of Prohibited Conduct and identifying and addressing any patterns or systemic problems that arise during review of those reports.

Each campus shall designate and provide notice of the name, title, office address, telephone number, and email address for the campus Title IX Coordinator and any designated Deputy Coordinators.

### Title IX Coordinator:

Karey Krohnfeldt, Title IX Coordinator & Director of Title IX Office of Equity  
Lawrence Street Center  
Campus Box #187  
1380 Lawrence Street, 12th Floor  
Denver, CO 80217  
Phone: 303-315-2567  
Email: [equity@ucdenver.edu](mailto:equity@ucdenver.edu)

Additional information about OE staff can be found at:

CU Denver (<https://www1.ucdenver.edu/offices/equity/about-us/meet-the-team/>)

CU Anschutz Medical Campus (<https://www1.ucdenver.edu/offices/equity/about-us/meet-the-team/>)

For all matters within the scope of the Policy, at a minimum, each campus Title IX Coordinator shall be specifically responsible and have delegated authority from the Chancellor for implementing the Policy. Subject to the Title IX Coordinator’s ultimate responsibility and authority, the Title IX Coordinator may further delegate responsibility and authority for the following functions:

1. Ensuring that reports of Prohibited Conduct are being handled appropriately and in a timely manner;

2. Overseeing adequate, reliable, and impartial investigations of reports of Prohibited Conduct;
3. Evaluating whether a formal complaint should proceed over a complainant's decision to not move forward pursuant to Section V.C.4 of the Policy;
4. Evaluating whether a formal complaint must be dismissed for jurisdictional bases;
5. Referring matters for further action or discipline for inappropriate or unprofessional conduct under other applicable policies or procedures even if a Policy violation is not found. No provisions of the Policy shall be construed as a limitation upon the authority of the appointing/disciplinary authority to initiate disciplinary action for inappropriate or unprofessional conduct;
6. Facilitating supportive measures for all parties;
7. Ensuring broad publication of the campus complaint process and Procedures, including posting the process and the Procedures on an appropriate campus website;
8. Providing an annual report to the President and the appropriate campus Chancellor documenting: (a) the number of reports or formal complaints of alleged violations the Policy; (b) the categories (i.e., student, employee, or other) of the parties involved; (c) the number of Policy violations found; (d) the number of appeals taken and the outcomes of those appeals; and (e) examples of sanctions imposed for Policy violations;
9. Reviewing and confirming that the relevant Policy statements of the campus Annual Security Report pursuant to the Clery Act are consistent with the Policy and campus complaint process and Procedures;
10. Monitoring campus compliance with this Policy;
11. Ensuring there is ongoing training and education regarding reporting and preventing sexual misconduct for all students, faculty and staff;
12. Ensuring that Title IX Coordinators, investigators, and decision-makers are thoroughly trained.
13. Maintaining records and related documentation of compliance with the Policy, including, but not limited to, retaining copies of any training documentation, tracking student and employee training participation, documenting each step of the campus complaint process and Procedures, including supportive measures, investigation, hearing, sanctioning, and appeal; and
14. Ensuring broad dissemination of the statement that the University shall not discriminate on the basis of sex in employment or in its education programs and activities.

## Student Right to Know and Disclosure Information

**Website:** <https://www.cuanschutz.edu/student/resources/right-to-know>  
(<https://www.cuanschutz.edu/student/resources/right-to-know/>)

### Crime Statistics

In compliance with the federal Student Right-to-Know and Campus Security Act, the Auraria Campus publishes crime statistics on campus in the Auraria Campus Clery Report. In an emergency, please contact Auraria Campus Police at 303-556-5000 or dial 911 from a campus phone.

## Persistence and Completion Data

Section 103 of Title 1 of Public Law 101-542 as amended by Public Law 102-26 (the Federal "Student Right-to-Know" Act) requires that institutions produce and make available to current and prospective students the completion rate of first-time, full-time, degree-seeking undergraduate students entering the institution. Six years after entering, 40 percent of the fall 2008 cohort graduated.

CU Denver's one-year fall-to-fall retention rate is 75 percent for the fall 2012 cohort. That is, of the first-time, full-time, degree-seeking undergraduate students who entered the university in fall 2012, 75 percent were enrolled at the Denver Campus in fall 2013 at the end of the term.

Voluntary System of Accountability (VSA) data indicate that the 2008 Denver Campus first-time, full-time, degree-seeking freshman cohort has an overall 4-year success rate of more than 80%, with 21% retained at another institution, 40% retained at CU Denver, nearly 15% graduated from CU Denver, and another 5.6% received degrees elsewhere.

## Riot Law (Student Riot Bill)

Student enrollment-prohibition-public peace and order convictions:

1. No person who is convicted of a riot offense shall be enrolled in a state-supported institution of higher education for a period of 12 months following the date of conviction;
2. a student who is enrolled in a state-supported institution of higher education and who is convicted of a riot offense shall be immediately suspended from the institution upon the institution's notification of such conviction for a period of 12 months following the date of conviction, except that if a student has been suspended prior to the date of conviction by the state-supported institution of higher education for the same riot activity, the twelve month suspension shall run from the start of the suspension imposed by the institution;
3. nothing in this section shall be construed to prohibit a state-supported institution of higher education from implementing its own policies and procedures or disciplinary actions in addition to the suspension under (2) of this section, regarding students involved in riot.

## Sex Offender Information (Campus Sex Crimes & Prevention Act)

Sex offenders are required to list the locations of all institutions of post-secondary education where they volunteer or are enrolled or employed. The Colorado Bureau of Investigation maintains a database identifying all such persons and makes it available to all law enforcement agencies in which jurisdiction the institution of postsecondary education is located. The campus community can obtain this information by contacting the Auraria Police Department at 303-556-5000.

## Voter Registration (National Voter Registration Act)

In compliance with the National Voter Registration Act, the state of Colorado voter registration application form and information is available online at [www.sos.state.co.us/pubs/elections/](http://www.sos.state.co.us/pubs/elections/) (<http://www.sos.state.co.us/pubs/elections/>) or [www.fec.gov/votregis/vr.shtml](http://www.fec.gov/votregis/vr.shtml) (<http://www.fec.gov/votregis/vr.shtml>)

## University System Policies

**Phone:** 303-860-5711

**Website:** <https://www.cu.edu/ope> (<https://www.cu.edu/ope/>)

The University of Colorado System Office of Policy and Efficiency (<https://www.cu.edu/opec/>) - with input from system and campus policy owners - develops, oversees and maintains the University's system wide policy-making process; facilitates the development, review, approval, and maintenance of University-wide policies.

#### Policies include:

- Intercampus Enrollment and Tuition
- Adopting Standards for Intercampus Transfer of Credits
- Sexual Misconduct, Intimate Partner Violence, and Stalking
- Digital Accessibility

## Admissions

Our diverse array of health sciences programs foster collaboration and interdisciplinary study, graduating students with the skills needed to thrive – and lead – in their chosen field.

Whether you are beginning your journey in healthcare or continuing your medical education, you'll be mentored by the best in their fields and given access to hands-on learning opportunities beyond the classroom, on a campus powered by prolific research and innovation.

To learn more, explore your school or college of interest below.

### Health Sciences Programs

The University of Colorado Anschutz Medical Campus is home to six professional schools offering over 46 degree programs:

- School of Medicine (p. 241)
- College of Nursing (p. 67)
- Skaggs School of Pharmacy and Pharmaceutical Sciences (p. 410)
- School of Dental Medicine (p. 218)
- Colorado School of Public Health (p. 104)
- Graduate School (p. 141)

### Non-Degree Admission

A non-degree student is defined as any student who has not been formally admitted to an undergraduate, graduate, or professional degree program at the University. Non-degree (except those admitted to a formal certificate program) students may apply and register on the dates specified by the respective school, college, or program. In order to be considered for a seat in a class, all non-degree students must submit a Course Permission form signed by the teaching faculty.

Non-degree students at CU Anschutz may register in one of the three schools/colleges depending on the course they wish to take. It is important to follow the correct instructions and complete the appropriate application for the desired non-degree courses. **Students must apply directly through the school/college offering the desired course(s), in accordance with that school/college's application deadlines.**

- College of Nursing Non-Degree Information (<https://nursing.cuanschutz.edu/academics/nondegree-programs/>)
  - Nursing coursework only
- Colorado School of Public Health Non-Degree Information (<https://coloradosph.cuanschutz.edu/education/degrees-and-programs/non-degree-programs/>)
  - Biostatistics or Epidemiology

- Graduate School Basic Sciences Non-Degree Information (<https://graduateschool.ucdenver.edu/admissions/non-degree-application-for-cu-anschutz/>)
  - Biomedical Basic Sciences, Toxicology, or Pharmaceutical Sciences

### Enrollment Deposit

A tuition deposit may be required of each student entering a school or program at the Anschutz Medical Campus. This deposit reserves a position in the class. This deposit will be applied to tuition and fees for the first term of attendance at the Anschutz Medical Campus. The deposit amount varies by school or college as does the deposit due date. There are some programs that require non-refundable enrollment deposits. To learn about the tuition deposit refund policy and procedures, please contact your School or College.

## International Admissions

**Director of International Enrollment Management:** Clay Harmon

#### Physical Address:

Student Commons Building, Suite 1119  
1201 Larimer Street, Denver, CO 80204

#### Mailing Address:

Campus Box A005  
PO Box 173364  
Denver, CO 80217-3364

**Telephone:** +1 (303) 315-2382

**Email:** [intladmissions@ucdenver.edu](mailto:intladmissions@ucdenver.edu)

**Website:** <http://internationaladmissions.ucdenver.edu> (<http://internationaladmissions.ucdenver.edu/>)

## Overview

CU Denver International Admissions manages the admission process for international undergraduate applicants who currently have or will require a temporary, non-immigrant visa to study in the United States. Advisors are available to help you through the entire application process.

We also evaluate international academic credentials for US citizens, permanent residents, and other applicants who have studied outside the United States before studying at CU Denver | Anschutz Medical Campus.

This page contains information for international applicants to undergraduate programs. For information about applying to a graduate program as an international student, please visit this page (<http://catalog.ucdenver.edu/cu-denver/graduate/international-admissions/>).

## Application for International Graduate Students

### Health Sciences Programs

Please contact the applicable college/graduate department below for specific admission requirements and deadlines:

- School of Medicine (p. 241)
- College of Nursing (p. 67)
- Skaggs School of Pharmacy and Pharmaceutical Sciences (p. 410)
- School of Dental Medicine (p. 218)



- Colorado School of Public Health (p. 104)
- Graduate School (p. 141)

## Non-degree admission

A non-degree student is defined as any student who has not been formally admitted to an undergraduate, graduate, or professional degree program at the University. Non-degree (except those admitted to a formal certificate program) students may apply and register on the dates specified below.

Graduate Basic Sciences and Public Health courses: Application is available on the web at <http://www.ucdenver.edu/admissions/apply/Pages/apply.aspx>. Once you arrive at the website, select "Non-Degree Graduate Students."

- International non-degree/certificate/CPE applicants must provide Proof of English Language Proficiency (<https://www.ucdenver.edu/international-admissions/apply-for-admission/graduate/>). If you have any questions regarding the ELP requirement, please contact International Admissions at [intladdmissions@ucdenver.edu](mailto:intladmissions@ucdenver.edu).

## Immigration Process

International Student & Scholar Services (ISSS) (<https://www.ucdenver.edu/services/international-student-and-scholar-services/>) handles the immigration process for international students. ISSS will issue an immigration document (Form I-20 or Form DS-2019) to you, if applicable, only after you have confirmed your acceptance and submitted the Immigration Clearance Form (see below).

You will be contacted within one week of receiving your decision letter to provide documentation for ISSS to issue an I-20 or DS-2019. You will be asked to provide the following information and documentation:

- Proof of Financial Support
  - Scholarships/assistantships
  - Personal bank statements
  - Family or other financial support
- Location inside and/or outside the U.S.
- Current Immigration Documentation
  - Passport
  - Current VISA (if applicable)
  - I-20/DS-2019 (if applicable)
  - Other Immigration documents

Please visit ISSS (<https://www.ucdenver.edu/services/international-student-and-scholar-services/students/pre-arrival/>) for more information on Pre-Arrival, Arrival at CU Denver, I-20/DS-2019 Timeline, and more.

## Proof of English Language Proficiency

### Proof of English Language Proficiency

International applicants to CU Anschutz must provide proof of English language proficiency (ELP) in order to be considered for full admission. Some graduate programs will consider international applicants for conditional admission if they apply without adequate proof of ELP. Contact International Admissions if you have questions about ELP or conditional admission.

You may meet the ELP requirement via any of the options listed below.

### 1. Citizenship Exemption

International applicants holding citizenship from the following countries do not need to prove their English language proficiency for admission to CU Denver. This list is based on the United Kingdom government's list of countries (<https://www.gov.uk/student-visa/knowledge-of-english/>) exempt from proving English ability when applying for a UK student visa.

- Antigua & Barbuda
- Australia
- The Bahamas
- Barbados
- Belize
- Canada
- Dominica
- Grenada
- Guyana
- Ireland
- Jamaica
- Malta
- New Zealand
- Saint Kitts & Nevis
- Saint Vincent & the Grenadines
- Trinidad & Tobago
- United Kingdom

### 2. ESL Academy

International applicants may meet the English language proficiency requirement for any program of study at CU Anschutz by successfully completing every class in level 5 at CU Denver's ESL Academy.

### 3. English Language Proficiency Tests

CU Anschutz accepts the following tests as proof of English language proficiency.

Test	TOEFL iBT	IELTS Academic	PTE Academic	Duolingo English Test
Overall Score	79	6.5	58	105
Subscores				
- Reading	18	5.5	42	Literacy: 85
- Listening	17	5.5	42	Conversation: 85
- Speaking	20	5.5	42	Comprehension: 85
- Writing	17	5.5	42	Production: 85

#### Notes:

- The scores listed above are the university minimum requirements. Some graduate programs require higher scores for admission. Please visit the website for your program of interest for more information.
- CU Denver's TOEFL code is 4875. For all other tests, please search for or choose "University of Colorado Denver."
- CU Denver accepts TOEFL MyBest scores and superscored IELTS scores.

## 4. Coursework Completion

International applicants who have completed the following coursework will be considered to have met the English language proficiency requirement.

- The applicant has earned a bachelor degree in the United States; or has earned a post-secondary qualification, comparable to a US bachelor degree, in one of the exempt countries listed above; or has earned such a qualification at an institution accredited by an exempt country but located in a non-exempt country, or
- The applicant has completed 12 or more semester hours of coursework in a master or doctoral degree program in the United States with an overall GPA of 3.0/4.0 or higher; or has completed a comparable amount of graduate coursework with a comparable GPA in one of the exempt countries listed above; or has completed such coursework at an institution accredited by an exempt country but located in a non-exempt country.

## Financial Information

Earning a degree is one of the most important investment decisions a student can make, and understanding the cost of is an important factor in the decision process. The Bursar's Office and Financial Aid & Scholarships Office are available to help prospective and current students in understanding the financial impact of their education.

There are many tools available to help you pay for your education - from student loans with lower interest rates that get paid back, to grants and scholarships that don't, to work study and student employment to help you earn funds.

## Quick Guide

Not sure of the difference between the student finance offices? Here's a quick guide to finding what you need.

### Bursar

- Application Fees Payments
- College Opportunity Fund
- Departmental Deposit Transactions
- Tuition and Fee Payments
- Refunds and Direct Deposits
- Student Account Reconciliation
- Third-Party Billing
- Student Balance Outreach
- Past Due Tuition Collection
- Tax Offsets
- Perkins and Institutional Loan Servicing

### Financial Aid & Scholarships

- How to apply for financial aid
- Free Application for Federal Student Aid (FAFSA) <https://fafsa.ed.gov/>
- Work-study and student employment opportunities
- Grant and student loan information
- Special circumstances, academic progress or financial hardship appeals
- Scholarships Information

## Contact Information

### CU Anschutz Bursar's Office Contact Information

Bursar@ucdenver.edu (bursar@ucdenver.edu)  
303-315-1800 (Main)  
303-315-1805 (Fax)

### physical Location

Education II North | Suite 3120A  
Office Hours: 8:00am-5:00pm

### Mailing address

University of Colorado Denver | Anschutz Medical Campus  
Bursar's Office  
Mail Stop A098  
13120 E. 19th Avenue, Room 3120A  
Aurora, CO 80045

### Express MAILING ADDRESS

University of Colorado Denver | Anschutz Medical Campus  
Bursar's Office  
Mail Center (C/O Bursar's Office A098)  
1945 N. Wheeling Street  
Aurora, CO 80045

### Past due accounts

303-303-1800  
bursar@ucdenver.edu

### Tax Offset

collections@ucdenver.edu

### Third party billing

thirdpartybilling@ucdenver.edu

### Perkins and Institutional Loan Inquiries

collections@ucdenver.edu

## CU Anschutz Financial Aid & Scholarships Office Contact Information

FinAid@CUAnschutz.edu  
303-724-8039

### advising hours

9:00 am - 1:00 pm (Monday, Tuesday, Thursday, Friday)  
Call or email us to schedule an appointment.

### Physical Location

Education II North | Student Services Suite (3rd Floor)

### Mailing Address

University of Colorado Anschutz Medical Campus  
Financial Aid & Scholarships Office  
Mail Stop A088, Education 2 North  
13120 E. 19th Avenue  
Aurora, CO 80045

### Overnight Packages

CU Anschutz Medical Campus  
Financial Aid & Scholarships Office  
Room 3123 (Student Services Suite)  
University of Colorado Anschutz Medical Campus  
13120 E. 19th Avenue, Box A-088  
Aurora, CO 80045

**TIP:** Providing a tracking number will aid in timely delivery of packages.

### Student Employment

Phone: 303-315-1842

StudentEmployment@ucdenver.edu

### Medical Students

Deedee Colussy is the point of contact for Medical Students with inquiries regarding financial aid. Her office is located in the Fitzsimons building (formerly Building 500), within the School of Medicine Office of Student Life.

Phone: 303-724-9117

Deedee.Colussy@CUAnschutz.edu

### Scholarship Notification

Students should notify Scotti Beck at Scholarships@CUAnschutz.edu if they are receiving a scholarship from a donor (source) from outside of the university. Mail scholarship checks to the Mailing Address listed above and include "ATTN: Scotti Beck".

## Tuition and Fees

For specifics on Tuition Deposits/Enrollment Deposits, please see Enrollment Deposit under the Admissions (p. 47) section of this catalog.

### Tuition and Fee Regulations

All tuition and fee rates are established by the Board of Regents, the governing body of the University of Colorado, in accordance with legislation enacted annually by the Colorado General Assembly. The Regents set tuition and fees rates at a budget retreat each spring for the coming fall, spring and summer terms, but reserve the right to change rates at any time. Rates for the current year are available online to assist prospective students in anticipating costs. Please refer to the website (<https://www.cuanschutz.edu/student-finances/tuition-fees/>) for current rates.

### Tuition for Courses Taken for No Credit

Tuition for courses taken for no credit (NC) is the same as for courses taken for credit.

### Fractional Credit

Any enrollment that totals less than one hour will be assessed at one credit hour for tuition and fee charges. Any total enrollment that is greater than one credit hour will be assessed based on the actual credit hours of the course. For example, enrollment in a course of .5 credit hours will be assessed at the one (1) credit hour rate. Enrollment in a course or courses that equal 2.5 credit hours will be assessed at 2.5 times the credit hour rate.

### Drop/Add Tuition Adjustment

A complete adjustment of tuition and fees will be made through the Census Date of each term. No refunds for any charges will be made for withdrawing from courses after Census Date. Students who dropped a class within the term but who were still charged for that class can contact their school's Admissions/Student Affairs Office to file a formal appeal. If their respective school determines that the circumstances justify relief from the tuition charges, the school will work with the Registrar's Office. *Please note that dropping all classes for a term is considered a complete withdrawal, whether or not the student officially withdraws from the University.*

### Late Registration Penalty

A late registration penalty will be charged to students who are authorized to register after their regular registration period. The late registration penalty is \$60.

### Matriculation Fee

There is a one-time non-refundable matriculation fee of \$140.00 for any student new to the University of Colorado Denver | Anschutz Medical Campus. This is assessed during the first semester as a degree-seeking student in an Anschutz Medical Campus program.

## COF - Undergraduate College Opportunity Fund

The College Opportunity Fund (COF), created by the Colorado Legislature, provides a stipend to eligible undergraduate students paying in-state tuition. The stipend pays a portion of your total in-state tuition for eligible undergraduate students who attend a public Colorado institution or a participating private institution. Eligible undergraduate students must be admitted and enrolled at a participating institution to use the stipend for eligible undergraduate classes. It isn't considered financial aid and doesn't figure into any financial aid packages offered by the college or university. The stipend pays a portion of your total in-state tuition and is paid directly to your institution on a per-credit-hour basis. This means that you will not receive a check in the amount of the COF, rather, you will see a deduction on your tuition bill.

The stipend is paid to the institution on a per-credit-hour basis, and the credit-hour amount is set annually by the General Assembly. Please check the official state <https://cof.college-assist.org/> website for the current amount. For further information, go to: <https://content.cu.edu/ums/cof/faq.html>.

## Tuition Classification (Residency)

The requirements for establishing residency for tuition purposes are defined by Colorado law. See Colorado Revised Statutes 23-7-101 et. seq (<https://highered.colorado.gov/colorado-residency-statutes/>).

The statutes require that a qualified individual must be domiciled in Colorado twelve (12) consecutive months immediately preceding the term for which resident status is claimed.

An individual is "qualified" by virtue of adulthood and emancipation at age 22, marriage, or enrollment in a post-baccalaureate graduate or professional degree program. Once emancipation is established, the domicile period (12 months) may begin. An unemancipated minor is qualified through the residency of his or her parents or legal guardians.

Initial residency tuition classification at the University of Colorado Anschutz Medical Campus is determined based on information students provide on the Initial Residency Verification Form. This form is administered by each individual school and program admissions office. Only students who are admitted to a program at the University of Colorado Anschutz Medical Campus are eligible to fill out this form.

After filling out the form, students are initially classified as Resident, Nonresident or Under Review. Students in Under Review status may receive follow up communication from the Registrar's Office requesting further information or supporting documentation for

tuition classification. Any questions may be addressed by emailing [TuitionClassification@CUAnschutz.edu](mailto:TuitionClassification@CUAnschutz.edu).

## Emancipation

A person must be legally emancipated before he or she is "qualified" to establish a domicile separate from the domicile of one's parents.

Emancipation for tuition purposes takes place automatically when a person turns 22 years of age, or marries, or commences a post-baccalaureate degree-granting program. Once emancipated, the clock starts for establishing domicile (physical presence and intent) and the student must wait 12 months to become eligible for in-state tuition.

A person who is unmarried and under 22 years of age at the beginning of the one-year waiting period and who wishes to claim "emancipated minor" status must prove that he or she is completely self-supporting and financially independent of his or her parents or legal guardian(s).

The following constitutes evidence of emancipation; however, no one criterion, taken alone, can be considered conclusive evidence of emancipation.

- Affidavit from parents or legal guardian(s) (found on the back page of the petition) stating relinquishment of any claim or right to the care, custody, and earnings of the minor, as well as of the duty to support the minor, with documentation of the fact that the minor has not been claimed as a tax deduction on income tax returns. (If a minor claims emancipation as of August 1 of a given year, and the parents have supported the minor from January 1 to August 1, the minor may be claimed for that given year, since the parents provided more than half of the support of the minor for that year.) Emancipation under these circumstances is the act of the parent and not of the child. If there is a duty to support the minor, as, for instance, a court order in a divorce decree, there is no emancipation.
- Lack of any financial support provided by the parents (including trust funds), coupled with proof that the minor can independently meet all of his or her own expenses, including the cost of education.
- Entry into military service.

Unemancipated minors may qualify for in-state tuition only when their parent(s) or legal guardian(s) are domiciled in Colorado.

An unemancipated child of divorced or separated parents can be immediately classified as in-state if either parent has been domiciled in Colorado the requisite period of time, regardless of which parent was granted custody or duty to support the minor by court decree. The parent in this instance is always the one to complete the petition for in-state classification, based on the parent's domicile and connections with the state.

## Establishing Domicile

An individual must have been domiciled in Colorado for a minimum of one calendar year before he or she can be determined to be a Colorado resident for tuition purposes. A domicile is a person's true, fixed and permanent home. Having a domicile in Colorado involves more than mere physical presence in the state. A person may have several places of residence but can have only one true domicile at any given time.

In order to establish domicile for tuition purposes, there must be:

1. physical presence for at least 12 months within the state of Colorado  
**AND**
2. demonstrated intent to make Colorado one's permanent home.

Intent is demonstrated by several kinds of connections (i.e. legal connections) with the state dated one year prior to the beginning of classes.

For School of Medicine and School of Dental Medicine applicants there is a different reference date for residency determination. It is the date of selection for admission. The date of selection is the date by which students must have established at least one year of Colorado domicile. The date of selection is applied during the same year the student intends to matriculate. The date of selection for the School of Medicine & School of Dental Medicine is July 1st. More information on unique legislation governing residency for the School of Medicine and Dental Medicine is available here (p. 53).

## Preparation for Petitioning to Become a Colorado Resident

Steps to take at least 12 months in advance of the first day of the term in which you wish to become a Colorado resident for tuition purposes include the items listed below. It is strongly recommended that students retain any/all copies of their efforts, including appointment confirmations with government offices or other entities, as demonstration of their timely efforts to establish Colorado domicile.

1. Retain your lease and rent receipts if you rent your home. If you have purchased a home, make sure to keep your paperwork and deed available. Proof of contract date and closing date are required. These documents will need to be attached to your petition to demonstrate at least 12 months of continuous physical presence.
2. Obtain your Colorado driver's license as soon as you move to Colorado. Do not wait because your previous license has not expired, or because you do not currently drive, or because you believe you don't have time.
3. Register to vote in Colorado (normally at the same time you obtain your driver's license).
4. Register all vehicles titled in your name in Colorado as soon as you move to Colorado. Do not wait because your previous state's license plates have not expired, or because you do not use your vehicle every day, or because you can't get to the county office. If you must make an appointment to receive service at your county office, retain the appointment information including the day that you made the appointment.
5. File Colorado Income Tax Forms on your Colorado employment at the appropriate time. It is also helpful to retain your paystubs showing Colorado tax withholding.
6. Plan to fill out the In-State Tuition Petition approximately three months before the first day of class of the semester for which you are applying.

These are the most important elements that will demonstrate your domicile for the purposes of Colorado residency and in-state tuition.

Permanent, full-time, off-campus employment and payment of Colorado State income taxes are considered highly persuasive in the petition process. Student employment or temporary work is not considered as persuasive. It is the actual official acceptance of employment that forms the connection with the state. Income earned in another state by a resident of Colorado is taxable in Colorado.



ANY connections maintained with any other state during the 12-month period for establishing domicile is considered evidence of non-domicile in Colorado, and negative intent to make Colorado one's permanent home.

Other factors that may be helpful in the petition process include

- continuous physical presence in Colorado during periods when not enrolled or during periods between academic sessions
- obtaining licensure or certification in the State of Colorado

It is the student's responsibility to be fully informed of the laws of Colorado that govern any of the "connections" made in establishing domicile, including vehicle ownership and operation, voter registration, payment of income tax, property ownership, etc. Noncompliance with these laws establishes a negative presumption of intent to make Colorado one's permanent home and will be weighed against any affirmative evidence of Colorado domicile.

## Evidence Indicating Domicile Outside of Colorado

Indicators that the student is not a Colorado resident include:

- receipt of WICHE or WUE funding
- failure to pay Colorado State income tax
- filing a nonresident Colorado tax return
- failure to comply with any law imposing a mandatory duty on a permanent resident of Colorado such as failure to register a vehicle or obtain a driver's license within the time period required by law
- return to your former state of residence for any period of time during summer or other periods of time when not attending classes
- maintenance of a home in another state
- prolonged absence from Colorado, except for military or civilian government service or temporary absences required by an employer
- voting or registering to vote in another state
- applying for a loan or receiving college funding from another state where domicile in that state is a condition of the funding

## Exceptions and Special Circumstances

### Four-Year Rule

Students whose parents maintain a Colorado domicile for four years and then establish domicile elsewhere, will remain eligible for in-state tuition if:

a) The parents leave Colorado after the student completes his or her junior year of high school and if the student enrolls at a Colorado public college or university within three years and six months after the parents leave Colorado. The student need not remain in Colorado when the parents leave or be emancipated from the parents.

OR

b) The student maintains continuous Colorado domicile. The student need not be emancipated. This provision generally will be met if the student continues to reside in Colorado after the parents leave or if the student resides outside the state only temporarily (for example, to attend college or for military service while maintaining Colorado domiciliary connections such as voter registration and income tax filing).

## Members of American Indian Tribes with Historical Ties to Colorado

Under the Colorado American Indian Tribes In-State Tuition Act (effective Fall 2021), a student who would not otherwise qualify for in-state tuition

and who is a registered member of one of the federally recognized American Indian tribes with historical ties to Colorado, as designated by the Colorado Commission of Indian Affairs in partnership with History Colorado (see list below), is eligible to be classified as an in-state student for tuition purposes.

A full list of eligible tribes and documentation required is available on the the Office of the Registrar's website (<https://www.cuanschutz.edu/registrar/residency/future-students/#ac-members-of-american-indian-tribes-with-historical-ties-to-colorado-2>).

## Military Service

### MILITARY EXCEPTION

Students should consult with Veteran and Military Student Services (VMSS) for more information regarding current legislation and necessary documentation. Current information is also available at the VMSS web resource page on residency at: <http://www.ucdenver.edu/life/services/Veteran/BenefitsInformation/Process/Residency/Pages/default.aspx>.

### MILITARY MEMBERS DOMICILED IN COLORADO

To retain domicile during an absence from Colorado due to military orders, military members must maintain Colorado as their state of legal residence for tax purposes, and voters must maintain voter registration.

Military members may retain legal residency in their original state, or they may establish a new legal residence in a state in which they reside due to military orders. They may not establish domicile in Colorado while residing elsewhere or while being physically present in the State only on a temporary basis.

Persons domiciled in Colorado for one year who enter active duty military service, and who return permanently to Colorado within six months of discharge, and their dependents, qualify for in-state tuition regardless of changes of domicile while on active duty.

### VETERANS

Students should consult with Veteran and Military Student Services (VMSS) for more information regarding current legislation and necessary documentation. Current information is also available at the VMSS web resource page on residency at: <https://www.cuanschutz.edu/veterans/benefits/residency> (<https://www.cuanschutz.edu/veterans/benefits/residency/>).

### CIVILIAN ABSENCES FROM THE STATE

Civilians who accept overseas employment, governmental or otherwise, or temporary employment in another state, or who are temporarily absent from Colorado for other reasons, must continue to file Colorado State income tax returns as residents for each and every year of their absence from the State. They must claim and pay taxes on all of their earnings, wherever earned, and will receive a credit for taxes withheld by or paid to another state. Failure to do so is sufficient evidence to determine that the individual has relinquished his or her Colorado domicile for tuition purposes.

## Permanent Resident Aliens and Visa Holders

Persons who are lawful permanent residents or who are admitted as refugees are eligible to establish domicile for tuition purposes. Nonimmigrant aliens who are residing in Colorado for purposes other than education may qualify for in-state status after one year of Colorado domicile. The nonimmigrant categories subject to this provision are

determined by the Colorado Commission on Higher Education. Non-immigrants in the following categories cannot qualify for in-state tuition: F-1, F-2, H-3, H-4 (if the visa holder is the spouse or child of an H-3), J-1 and J-2 (if the J-1 visa holder is a student or trainee), M-1, and M-2.

### Asset Bill (SB13-033)

A student who does not have lawful immigration status may be classified as an in-state student for tuition purposes if:

1. the student attended high school in Colorado for at least three years immediately preceding the date the student graduates from a Colorado high school or earns a GED
2. the student is admitted to a Colorado institution of higher education or attends any institution of higher education under a Colorado reciprocity agreement within 12 months of graduation or earning a GED, and
3. the student submits an affidavit through the COF application process stating that the student does not have lawful immigration status but has applied for lawful presence or will apply as soon as the student is eligible.

Additionally, a student who does not have lawful immigration status and graduated from a Colorado high school or earned a GED prior to September 1, 2013, but was not admitted to a Colorado institution within 12 months of graduating or earning a GED, may nonetheless be qualified as an in-state student if the student has been continuously physically present in Colorado for at least 18 months prior to enrolling in a Colorado institution.

### Petitions and Appeals

The Petition for Resident Tuition Classification is an electronic form for the University of Colorado Anschutz Medical Campus current students and fully admitted students to request a change in their tuition classification and residency status. It can be accessed at the following web address: <https://www.cuanschutz.edu/registrar/residency/current-students> (<https://www.cuanschutz.edu/registrar/residency/current-students/>). Prior to submitting the petition, students should gather the information/documentation outlined in the Petitioner Documentation Guidelines ([http://catalog.ucdenver.edu/cu-anschutz/financial-information/residency-tuition-classification-accountable-students/PetitionDocumentation\\_revSept2020.pdf](http://catalog.ucdenver.edu/cu-anschutz/financial-information/residency-tuition-classification-accountable-students/PetitionDocumentation_revSept2020.pdf)).

Students who wish to change their tuition classification from non-resident to resident must fill out and submit a Petition for Resident Tuition Classification by the published deadlines. Students must have established 12 months of Colorado domicile prior to the first day of the term for which they are petitioning. Further information regarding establishing Colorado domicile is available through the Colorado Department of Higher Education.

#### PETITION SUBMISSION DEADLINES

##### Fall 2022

- First day to petition - May 22, 2022
- Priority Petition Deadline - July 15, 2022
- Final Petition Deadline - August 5, 2022

##### Spring 2023

First day to petition - October 3, 2022

Priority Petition Deadline - December 2, 2022

Final Petition Deadline - December 12, 2022

##### Summer 2023

First day to petition - March 13, 2023

Priority Petition Deadline - May 1, 2023

Final Petition Deadline - May 15, 2023

## Accountable Student Information School of Medicine & School of Dental Medicine Nonresidents and Accountable Students

Tuition and fees for non-resident students enrolled in the University of Colorado School of Medicine M.D. program and School of Dental Medicine D.D.S. program are governed by special Colorado legislation.

Accountable students at the Anschutz Medical Campus are persons who, as of the date of their selection for admission into an Anschutz Medical Campus professional health care program (currently students in the Schools of Medicine and Dental Medicine), will not be receiving funding from the State of Colorado or a cooperative state for any portion of the costs incurred in participating in designated Anschutz Medical Campus professional health care programs. Prior to matriculation, accountable students must agree to the terms of an accountable student contract (including payment of in-state tuition plus associated accountable student fee) for the duration of their professional degree training.

The "Accountable Student Program for Students in Health Sciences Professions" was enacted in 2006 by the State legislature. This legislation, Colorado State Statute C.R.S. 23-20-138 is available for reference here ([https://leg.colorado.gov/sites/default/files/images/olls/2006a\\_sl\\_138.pdf](https://leg.colorado.gov/sites/default/files/images/olls/2006a_sl_138.pdf)). The Health Sciences Center implemented this program for the Schools of Medicine and Dental Medicine effective with the 2006-07 academic year. This legislation essentially uncoupled residency status from tuition classification for students classified as accountable students, who each year pay in-state tuition plus an associated accountable student fee.

Accountable students, once designated and having signed the accountable student contract, are bound by the terms of their contract for all years of their studies, including their agreement to pay the accountable student fee regardless of residency status. They may, however, petition for Colorado residency status in order to qualify for other forms of financial assistance available to eligible students who are Colorado residents. Establishing residency status also will allow accountable students the benefit of in-state tuition rates in other degree programs should they choose to enroll in a second degree program (e.g. Master of Science in Public Health, or Master of Business Administration). Petitioning for in-state residency status normally is undertaken after a student has been in Colorado for a year and before his/her second year of studies. Petitions are available from and processed by the Registrar's Office.

Additional information regarding Accountable student responsibilities is available through the Office of the Registrar's website (<https://www.cuanschutz.edu/registrar/residency/accountable-student-information/>).

## Paying Your Bill

Students enrolling at the Anschutz Medical Campus are responsible for full payment of tuition and fees. Students should be prepared to pay their bills in full by the due date noted on their billing statement. Tuition and fee payment due dates vary by semester and campus. Please refer to the Billing Calendar for specific dates.

Failure to receive a tuition bill notification does not dismiss the student from their obligation to pay. Failure to pay tuition or stopping payment does not cancel classes and does not eliminate or reduce the financial obligation. Students are financially liable for all classes for which they are registered (whether through self-enrollment or block/batch enrollment at the direction of the program). Failure to attend classes does not cancel a student's registration, nor does it remove the student's financial obligation. See the Tuition and Fees Payment Disclosure Statement (<https://www.ucdenver.edu/docs/librariesprovider22/billing-payments/tuition-and-fee-agreement.pdf>): <https://www.ucdenver.edu/docs/librariesprovider22/billing-payments/tuition-and-fee-agreement.pdf>.

The student's bill will be comprised of tuition and fees (potentially including student health insurance) for the current term. The bill may also include any credits due for advance payments, deposits, and financial aid when applicable. Students with unpaid tuition balances will not be allowed to register for subsequent semesters or obtain a copy of their official transcript or diploma.

Students may pay tuition and fees through the UCDAccess portal, or with cash, personal checks, or by credit card at the Bursar's Office. Any payment transaction that is returned by the bank will be assessed an additional returned payment charge.

The University of Colorado Denver is committed to providing students and their families a range of options for paying their educational expenses. The credit card (including debit card) payment method has become prohibitively expensive due to the fees charged by credit card companies to CU Denver for credit card transaction processing. This expense has been covered by University tuition revenues, and reduces the tuition dollars available for academic programs and services for all students. Therefore, a service fee of 2.75% of the payment amount will be assessed for all credit and debit card transactions.

### Late and Service Charges

A once-per-term late charge of \$5 - \$50 based on outstanding balance and a monthly service charge of 1.00% will be added to a student account if the account is not paid in full. The late charge will be assessed once per term, while the service charge will be assessed each month a student has a past due balance.

### Enforcement

Past due student accounts are referred to Student Debt Management. An overdue student account may also be referred to a third party collection agency and reported to one or more credit bureau reporting services. The student explicitly authorizes University of Colorado Denver | Anschutz Medical Campus to release personal and financial information under those circumstances.

To the extent permitted by applicable law, the student agrees to reimburse University of Colorado Denver | Anschutz Medical Campus the fees of any collection agency, which may be based on a percentage at a maximum of 40% of the debt, and all costs and expenses, including reasonable attorney's fees incurred in such collection efforts.

In addition, while the student maintains a past due balance with the University, a hold will be placed on the student record stopping any future registration and the release of official transcripts and diploma.

Pursuant to C.R.S. 23-5-15, in the event of a default on an amount owed to University of Colorado Denver | Anschutz Medical Campus, the University of Colorado Denver | Anschutz Medical Campus may certify to the Colorado Department of Revenue information regarding persons with past due accounts. The Colorado Department of Revenue may then disburse funds to University of Colorado Denver | Anschutz Medical Campus in satisfaction of that debt from tax refund amounts owed to the individual, if any.

### Personal Checks

There is a \$20.00 returned check fee on all items returned by a financial institution.

### Refunds and Complete Withdrawal Charges

No withdrawal is valid without the written consent of the dean or the dean's designee of the school, college, or program in which the student is registered. If a student withdraws from the University after Census Date, no refund of tuition and fees will be granted.

The deans or their designees of the schools, colleges, and programs at University of Colorado Denver | Anschutz Medical Campus may, under extenuating circumstances, waive all or a portion of tuition and fee charges upon a student's complete withdrawal or dismissal from school. Students requesting tuition relief due to a withdrawal for unforeseen circumstances should contact their school's Admissions/ Student Affairs Office to file a formal appeal. If their respective school determines that the circumstances justify relief from the tuition charges, the school or college will work with the Registrar's and Bursar's Offices to enter the appropriate drop or withdrawal coding on the student's account.

The University must follow specific Federal guidelines regarding aid adjustments for students who withdraw from all classes. For more information, please reference the Financial Aid section of this catalog under "Return to Title IV." The policy states students may withdraw their enrollment in a program until the published Census Date of the semester and receive a full refund of tuition and fees. Withdrawals occurring after the published Census Date will not be eligible for any refunds.

Census Dates are published to indicate when students can drop or withdraw from courses or a program without incurring a financial obligation for tuition and fees to the University.

### Tuition Assistance Benefit (TAB)

The University of Colorado offers a Tuition Assistance Benefit to employees. This benefit is administered through Employee Services at the CU System level. For more information, please visit the Employee Services <https://www.cu.edu/employee-services/benefits-wellness/current-employee/tuition-assistance> (<https://www.cu.edu/employee-services/benefits-wellness/current-employee/tuition-assistance/>)

## Financial Aid

The CU Anschutz Medical Campus Financial Aid & Scholarships Office (FASO) is committed to providing prospective and continuing students with information and resources to financially support their educational goals. We strive to provide service in a timely, equitable and caring manner, in full support of the community, university and governing agencies. Please visit our website at [www.cuanschutz.edu/student-](http://www.cuanschutz.edu/student-)

finances/financial-aid (<https://www.cuanschutz.edu/student-finances/financial-aid/>) for more information.

## Applying for Financial Aid

You must complete the Free Application for Federal Student Aid (FAFSA) at StudentAid.gov (<https://studentaid.gov/>) for the school year you wish to attend. Gift aid is awarded on a first-come, first-served basis so you are encouraged to submit all required or requested documents as soon as possible. Please check your "To Do List" in the Student Center of your student portal to see if any additional documents have been requested. For additional information on Applying for Financial Aid, please visit [www.cuanschutz.edu/student-finances/financial-aid/apply](https://www.cuanschutz.edu/student-finances/financial-aid/apply) (<https://www.cuanschutz.edu/student-finances/financial-aid/apply/>).

## Eligibility for Financial Aid

All applicants for aid must be degree candidates or enrolled in an acceptable certificate program. If you are enrolling in a certificate program, contact our office to make sure you are in an eligible program. Foreign students who are in the United States on immigrant or permanent visas may be eligible for financial aid and should contact the Financial Aid & Scholarships Office.

Title IV funds include, but are not limited to the Federal Pell Grant, Federal Supplemental Educational Opportunity Grant (SEOG), Federal Direct Subsidized Loan, Federal Direct Unsubsidized Loan, Federal Direct Parent PLUS Loans, Federal Direct Graduate PLUS Loan, and Federal Work-Study.

All students who wish to receive most types of financial aid:

- demonstrate financial need
- must be a U.S. citizen or eligible non-citizen
- must be admitted to or enrolled in an eligible degree or certificate program, as determined by the Anschutz Medical Campus
- must maintain Satisfactory Academic Progress (SAP) standards
- must not be in default on a student loan
- must not have drug-related offenses (contact our office for more information)

Click here (<https://studentaid.gov/understand-aid/eligibility/requirements/>) to learn more about eligibility requirements for federal student aid.

## Types of Financial Aid

Financial aid funding for students at the Anschutz Medical Campus is available from federal, state and institutional sources. To receive federal, state and many institutional sources of funding, you must apply and qualify for financial aid. Most financial aid is awarded on the basis of financial need and availability of funds. Other sources, local, private, and institutional are awarded on the basis of these criteria, such as academic achievement.

The following types of financial aid are available for students at the Anschutz Medical Campus:

- Scholarships - "gift money" that is awarded on the basis of academic achievement (merit-based scholarships) or a combination of academic performance and financial need. These funds do not have to be repaid.
- Grants - "gift money" from federal, state, and University funds that are awarded based on financial need. These funds do not have to be repaid.

- Work-Study - The work-study program provides part-time employment opportunities for students with financial need and allows them to earn money to help pay education expenses. Jobs may be on campus, off-campus, or in a community service agency. Student seeking work-study funds must complete the Work-Study Request Form at [www.ucdenver.edu/AnschutzFinAid/Forms](https://www.ucdenver.edu/AnschutzFinAid/Forms). To find a work-study job, please visit the Student Employment website.
- Loans - These are funds you can borrow from institutional loan programs, federal loan programs, and private lenders. Most loans must be repaid once you graduate, withdraw from school, or drop below half-time enrollment.

Funds you receive from your department, or other source, to pay for tuition and fees, living expenses, books, and other educational expenses, are generally counted as estimated financial assistance and must be included as part of your financial aid award. This may result in a reduction of other awards on your award notification. Certain veteran education benefits are excluded. For more information about the types of aid, please visit the Types of Financial Aid section on our website.

## Financial Aid Offers

Financial aid funds will be offered once we have received and processed all required and requested documents. An email reminder will be sent to your Anschutz Medical Campus email account if additional documents are requested. The "To Do List" in the Student Center of the UCDAccess portal will also list any additional documents that have been requested. An award notification will be sent to your CU Anschutz email account when awards are available to view.

## Loan Requirements

Students who borrow a student loan must complete all required loan documents before the funds can be disbursed. Visit <https://www.cuanschutz.edu/student-finances/financial-aid/types/loans> (<https://www.cuanschutz.edu/student-finances/financial-aid/types/loans/>) to learn more about the different types of loans.

Please visit StudentAid.gov (<https://studentaid.gov/>) to complete the appropriate Master Promissory (<https://studentaid.gov/mpn/>) and Student Loan Entrance Counseling (<https://studentaid.gov/entrance-counseling/>) if you or your parent will be borrowing any of the following federal loans for the first time.

- Direct Stafford Loans (subsidized and unsubsidized)
- Direct Graduate PLUS Loans (requires a credit check)
- Direct Parent PLUS Loans (requires a credit check)

If you are accepting a TEACH Grant, please complete the TEACH Grant Counseling and Agreement to Serve (<https://studentaid.gov/teach-grant-program/>) at StudentAid.gov (<https://studentaid.gov/>).

You will receive an email from Heartland ECSI (<https://heartland.ecsi.net/>) (webmaster@ecsi.net) with instructions on how to complete the loan documents for the following loans.

- Federal Nursing Loan
- Nurse Faculty Loan Program
- Health Professions Student Loan
- Loan for Disadvantaged Students
- Medical Center Loan
- Medical Student Loan



## Disbursing (Paying) Financial Aid

- Financial aid is disbursed (paid) into your student account approximately one week before the start of classes each semester.
- Funds remaining after tuition, fees and any other institutional charges are paid will be refunded to you by the Bursar's Office through direct deposit to your bank account. If you do not have direct deposit set up, a check will be mailed to the address you have on file in the Student Center.
- Funds remaining from a Parent PLUS Loan may be refunded to you or your parent as indicated on the PLUS Loan application.
- Some financial aid funds cannot automatically pay charges the federal government considers non-mandatory. This includes health insurance, dental insurance, bookstore charges, and late charges. If you wish for your financial aid to pay these charges, you must grant permission through the portal. If permission is not granted, you will be responsible for paying any and all of these charges out of pocket.
- Work-study funds must be earned through work and are not disbursed into your student account.

## Satisfactory Academic Progress (SAP) Standards

- Students are responsible for understanding the Satisfactory Academic Progress (SAP) Standards (<https://www.cuanschutz.edu/student-finances/financial-aid/policies/>). Therefore, students are encouraged to review this policy and meet with a financial aid advisor before withdrawing from or dropping any courses.
- To be eligible for financial aid, federal, state and institutional regulations require student to meet certain SAP standards. The purpose of SAP is to ensure academic success and graduation. Students who are receiving aid, or who intend to receive aid in the future, must comply with these standards.
- SAP will be evaluated at the end of each term. Students who do not meet the SAP standards will be informed of their eligibility status via email. Students in Good Standing are not notified unless their status changes to Warning or Suspension. This is not the equivalent of being placed on academic probation or suspension by your school or college.
- Here are some commonly used terms relating to SAP.
  - Good Standing:** Students meeting financial aid SAP standards are considered in good standing and are eligible to receive financial aid.
  - Warning:** Students who have failed to meet SAP standards after being in Good Standing may be placed on Warning status. Students on Warning status are eligible to receive financial aid. Student on Warning status have one term to come back into compliance with the financial aid SAP requirements and return to Good Standing. Students who fail to meet financial aid SAP standards while on Warning status will be placed on financial aid Suspension.
  - Suspension:** Students who fail to meet financial aid SAP standards while on Warning status will be placed on financial aid Suspension and are not eligible for any aid until they meet the standards or successfully appeal.
  - Probation:** Students who successfully appeal their financial aid Suspension are placed on financial aid Probation. Students on Probation will receive aid for one term while attempting to meet

SAP standards in order to return to Good Standing. Failure to meet SAP standards at the end of a Probation term results in the student returning to financial aid Suspension status.

- Students on financial aid Suspension have two ways to regain eligibility for financial aid:
  - Meet all the SAP standards while not receiving financial aid. Once SAP standards are met, students must notify the Financial Aid and Scholarships Office to have their status re-evaluated.
  - If extenuating circumstances interfered with the student's academic progress, the student may appeal his suspension by completing the Satisfactory Academic Progress (SAP) Appeal/Advising Form in our forms section (<https://www.cuanschutz.edu/student-finances/financial-aid/forms/>).

## Complete Withdrawal (From All Courses) and Financial Aid

Withdrawal is defined as ceasing to be enrolled prior to the end of the standard term. To comply with Federal (Title IV) financial aid regulations, the FASO is required to apply the Return of Title IV Aid Calculation to all students who received Title IV aid at the time of withdrawal.

The official withdrawal date will be determined by the Registrar's Office based on information from the school or college, the faculty member, and the student. Either the school or the student must notify the Registrar's Office and the Financial Aid and Scholarships Office of the official withdrawal date. If the date cannot be determined, all aid for the term may be cancelled.

## Documenting Attendance

Federal regulations require that Title IV aid recipients begin attendance in a class to establish eligibility for the funds. Institutions are required to document that attendance began in classes where a student drops, withdraws, or received an "F" grade. Faculty will be asked to document that attendance has begun. If attendance cannot be confirmed, all aid will be cancelled for the term.

## Return of Title IV Policy

- Federal calculations will apply.
- The amount of repayment will depend on:
  - the number of days you attended class in the term
  - the type of financial aid you received
  - whether you are refunded a portion of tuition and fees. The portion of the term you did not attend represents the portion of aid that must be repaid.
- If you withdraw after completing more than 60% of the term, you will have earned 100% of the federal financial aid received for that term and no repayment is required.
- Students withdrawing from school:** Financial aid recipients who are withdrawing from all classes from the CU Denver | Anschutz Medical Campus must complete the University Withdrawal Form at [www.cuanschutz.edu/registrar/student-resources/forms/](https://www.cuanschutz.edu/registrar/student-resources/forms/) (<https://www.cuanschutz.edu/registrar/student-resources/forms/>) and should contact the Financial Aid and Scholarships Office prior to withdrawing.

## Leave of Absence (LOA)

Students are not eligible to receive financial aid funding while on LOA from the University. If the student begins the LOA during the semester, a Return of Title IV calculation and a withdrawal form are required.

## Loan Exit Counseling

Exit counseling is required when students graduate, leave school, or drop below half-time enrollment. Exit counseling provides important information needed to prepare to repay federal student loans. Students must complete exit counseling for each type of loan borrowed, as well as the TEACH Grant, if received.

Please visit StudentAid.gov (<https://studentaid.gov/>) to complete exit counseling for the following Federal programs:

- Direct Stafford Loans (subsidized and unsubsidized)
- Direct Graduate PLUS Loans
- Direct Parent PLUS Loans
- TEACH Grant

Please visit Heartland ECSI (<https://heartland.ecsi.net/>) to complete exit counseling for all other loans:

- Federal Nursing Loan
- Nurse Faculty Loan Program
- Health Professions Student Loan
- Loan for Disadvantaged Students
- Medical Center Loan
- Medical Student Loan

## Veterans' Benefits

### Veterans & Military Student Services

Location: Education 2 North, Room P28-3201

<https://www.cuanschutz.edu/veterans> (<https://www.cuanschutz.edu/veterans/>)

Phone: (303) 724-9649

Email: [VMSS@ucdenver.edu](mailto:VMSS@ucdenver.edu)

The office of Veteran & Military Student Services (VMSS) is the initial contact point for military-connected students attending CU Anschutz Medical Campus. The main priority of the office is to verify US Department of Veterans Affairs education benefit certification for eligible students, ensuring that each student meets the VA requirements for attendance, course load, content, as well as all other regulations necessary to receive educational benefit payments.

Representing active-duty, reservist, National Guard, veteran and dependents at CU Denver and CU Anschutz Medical Campus, the Office of Veteran and Military Student Services (VMSS) supports students as they transition from the military to the classroom and then on to the workforce.

## Student Employment

### Types of Employment

**Work-Study** is a need-based award offered by the Financial Aid & Scholarships Office, making it easier for students with financial need to find a part-time job and earn money to help pay for educational expenses. The program encourages community service work and work related to the recipient's course of study. Work-Study positions are funded solely by the work-study award through your financial aid package. To be eligible, all students must:

- Complete the Free Application for Federal Student Aid (FAFSA) at <https://studentaid.gov> (<https://studentaid.gov/>);

- Be accepted into a degree program;
- Be enrolled at least half-time each semester (at least 6 credits for undergraduate students and at least 3 credit hours for graduate students);
- Submit a Work-Study Request Form at <https://www.cuanschutz.edu/student-finances/financial-aid/forms> (<https://www.cuanschutz.edu/student-finances/financial-aid/forms/>).

**Student Hourly** positions are on-campus positions funded by a university department's budget. Work-study and/or financial aid is not required for this type of employment. All hourly students must be enrolled in some credit-earning capacity during the semester in which you are employed.

**Regular Hourly** positions are offered by businesses in the surrounding community, and are not affiliated with the university. Work-study and/or financial aid is not required for this type of employment. All students, regardless of enrollment or financial need, may apply for these positions.

### Student Employment Policies

After gaining employment, it is the sole responsibility of every student employee (work-study & hourly, on or off-campus) to read and understand both the Student Employment Policy and Student Employee Information and Policy sections of the Student Handbook at <https://www1.ucdenver.edu/docs/librariesprovider267/default-document-library/work-study-student-employment-handbook.pdf>.

If a student employee does not understand or has questions regarding any portion of the Handbook, please talk with a department supervisor or contact the Student Employment Office at: [StudentEmployment@ucdenver.edu](mailto:StudentEmployment@ucdenver.edu) ([studentemployment@ucdenver.edu](mailto:studentemployment@ucdenver.edu)) or (303) 315-1842.

Please visit our Student Employment website at <https://www.cuanschutz.edu/student-finances/student-employment> (<https://www.cuanschutz.edu/student-finances/student-employment/>) for additional information.

## CU Anschutz Shares

CU Anschutz Shares is an emergency fund available to all students. The fund is coordinated by the Office of Case Management at CU Anschutz.

Applications are available online at <http://www.ucdenver.edu/anschutz/studentresources/student-assistance/student-wellbeing/Pages/CU-Anschutz-Shares.aspx>.

The funds are available on a first-come, first-served basis and the decision to provide funding is made by the Office of Case Management in conjunction with the Associate Vice Chancellor for Student Affairs or their designee.

## Academic Standards and Policies

### Academic Standards and Policies

#### Classroom Security

More than 60 rooms in Education 1 and 2, as well as larger labs in the research building, have been equipped with upgraded security features.

In the event of an imminent harmer threat, one of the panic buttons in the classroom should be pressed and occupants of the room should

contact University Police at (303) 724-4444. Pressing the button will automatically lock the room and alert the University Police. Simultaneously, any room in that same building equipped with the security technology will also lock and the in-room strobe light will activate, alerting occupants to an imminent threat in the building.

In addition, each room is equipped with a severe bleeding kit. An information sign is posted with further information and instructions.

Rooms with the security upgrades are equipped with: panic buttons (on podium and accessible wall), guidance signage, severe bleeding kit for severe bleeding control, blue strobe light and reinforced caulking and protective film on door windows. When the panic button is pushed, University Police are notified immediately, blue strobe lights will activate inside of all rooms equipped with a strobe, blue strobe will activate in the hallway of the room where the button was pushed, and doors will lock on all rooms equipped with security project door locks in the building.

Occupants of the room may leave the room. However, only University Police will have access to enter the room.

## Email and Network Access for Students

All enrolled CU Anschutz Medical Campus students are assigned an email account which is the primary method for receiving university information and communication. Your university username and password provide access to the UNIVERSITY domain, campus computers, class evaluations, and student portal. In addition, all students, faculty and staff need to register for multi-factor authentication (MFA) (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/cu-secure-and-multi-factor-authentication/>) using Duo Security to access university resources including email.

University email is an official method of communication between students and university administration, and Microsoft 365 Outlook is the only university-supported email client. OIT recommends installing Outlook on your devices for ease of use and security purposes. More information about installing and using Outlook email is available on the Microsoft Outlook Email webpage. (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/email-and-webmail/>) If you do not have a password or your need to update your password, visit the university password webpage (<https://passport.ucdenver.edu/passwordreset/>).

Students may use shared computer workstations in school-operated labs or at the Strauss Health Sciences Library. All persons using shared computers should be especially careful to log off their account when completing their work. More information is available at the Strauss Health Sciences Library computer workstations webpage (<https://library.cuanschutz.edu/help/technology-help/computer-workstations/>).

There are two wireless networks on campus: CU Anschutz Guest (non-secure and no logon needed) and CU Anschutz (certificate secure and DOES require university logon with your university username or email address and password). Please contact the OIT service desk (<https://www1.ucdenver.edu/offices/office-of-information-technology/get-help/>) for assistance with a service or help troubleshooting technology issues.

## No Credit Courses

A student may not audit courses at the Anschutz Medical Campus. Instead, a student who has been officially accepted may register in a course for no credit. Persons enrolling for no credit must pay the same tuition per credit hour as they would if they were taking the course(s) for credit.

Students must complete regular registration and then change from credit to no credit by obtaining a no credit form and appropriate signatures before the drop/add period ends.

"Request for No Credit" forms are available on the Registrar's Office website (<https://www.cuanschutz.edu/registrar/student-resources/forms/>).

## Study Abroad

The Office of Global Education / Study Abroad provides academically and professionally relevant international experiences to a diverse student population at the University of Colorado Denver | Anschutz Medical Campus. These experiences equip students with cross-cultural skills necessary to succeed in an interconnected global society. The Office of Global Education is committed to providing students with a wide range of engaging and affordable study, research, and clinical opportunities. CU Anschutz students and residents planning an international experience should contact the Office of Global Education for further information about planning and registration."

Email: [study.abroad@ucdenver.edu](mailto:study.abroad@ucdenver.edu)

Phone: 303.315.2001

Website: <https://www1.ucdenver.edu/students/study-abroad> (<https://www1.ucdenver.edu/students/study-abroad/>)

# Academic Calendar

## Academic Calendar

The 2022-2022 Academic Calendar contains important dates, deadlines, holidays, and exams for the CU Anschutz Medical Campus. Please note that some dates **may vary by School, College, Program, or Department**. Students are advised to work directly with their respective School, College, Program, or Department for any variance(s) to the standard dates below.

Additional program-specific academic calendars are also available through the Office of the Registrar's website (<https://www.cuanschutz.edu/registrar/academic-calendars/>).

## Fall 2022

Event	Date
First day to apply for Fall Graduation	June 13, 2022
Course Enrollment Begins	July 5, 2022
Classes start	August 29, 2022
Labor Day	September 5, 2022
Drop/Add Deadline	September 9, 2022
Last day to apply for Fall Graduation	September 9, 2022
Census Day	September 12, 2022
Thanksgiving Day	November 24, 2022
Classes end	December 9, 2022
Finals week	December 12-16, 2022
Degree conferral date	December 16, 2022
End of semester	December 16, 2022
Commencement	December 16, 2022
Grades due	December 21, 2022

## Spring 2023

Event	Date
First day to apply for Spring Graduation	September 12, 2022
Course Enrollment Begins	October 31, 2022
Martin Luther King Jr. Day	January 16, 2023
Classes start	January 23, 2023
Drop/Add Deadline	February 3, 2023
Last day to apply for Spring Graduation	February 3, 2023
President's Day	February 20, 2023
Census Day	February 6, 2023
Spring Break	March 20-24, 2023
Classes end	May 12, 2023
Finals week	May 15-19, 2023
Degree conferral date	May 19, 2023
End of semester	May 19, 2023
Grades due	May 24, 2023
Commencement	May 26, 2023
Memorial Day	May 29, 2023

## Summer 2023

Event	Date
First day to apply for Summer Graduation	February 6, 2023
Course Enrollment Begins	March 27, 2023
Classes start	June 5, 2023
Drop/Add Deadline	June 9, 2023
Last day to apply for Summer Graduation	June 9, 2023
Census Day	June 12, 2023
Independence Day	July 4, 2022
Classes end	August 11, 2023
Finals week	August 14-18, 2023
Degree conferral date	August 18, 2023
End of semester	August 18, 2023
Grades due	August 23, 2023

# Academic Credit

## Credit Hour & Contact Hour Guidelines

(Effective March 2021)

These guidelines are intended to serve as a framework and resource in support of:

- Developing, delivering and innovating curriculum and courses
- Establishing CU Denver | CU Anschutz guidelines that align with state and federal guidelines
- Assisting schools and colleges in their responsibilities to assign and oversee credit and contact hours
- Meeting accreditation requirements for our campuses
- Defining minimum expectations for credit and contact hours in course components

### Guideline Exception Requests

In order to provide maximum flexibility in recognition of the range of instructional activities across our two campuses and the ways in which

instructional activities change and evolve, requests may be made through the relevant Dean to the Provost for exceptions to these guidelines.

### School/College Oversight

Schools/Colleges and their programs have the responsibility to define, approve, implement, oversee and monitor credit and contact hours, and the minimum expectations of student and faculty in all course components. Schools and colleges ensure that syllabi and/or special processing forms are used for all courses.

### Definitions

**Course Component** describes the course types currently programmed in the University of Colorado Student Information System (CU-SIS) and the selectable course options that schools and colleges utilize when building courses. It describes the type of class offered: the part or modules of a course that work together to define the entire course structure. The course components included in this document are those used at CU Denver and/or CU Anschutz.

**Instructional Contact** Time encompasses direct and indirect instruction of students by faculty. The course components utilized for instruction are described below in sections A and B.

**Out-of-Class Student Work** describes minimum guidelines regarding the amount of time students can expect to engage in course activities that occur outside of scheduled class times. This can include reading and studying materials presented in a lecture course, as well as activities such as experiential, research, creative or written work undertaken by a student to meet or exceed the expectations, learning objectives and rigor of the academic program.

**Credit Hour** includes a combination of instructional contact time and out-of-class student work.

### A. Guidelines by Course Component for Lectures

*The following provides general definitions and guidance on how the credit hour translates to the course components utilized by the University of Colorado Denver | Anschutz Medical Campus.*

*Note, the information below serves as general guidance only, and the definitions do not dictate particular amounts of classroom time versus out-of-class student work.*

**Lecture:** Faculty member responsible for delivery and discussion of learning material and related instructional activities. Minimum instructional contact time per credit is noted below.

*Credit Awarded	Minimum Instructional Contact time/week	Minimum Instructional Contact time/15wks	Minimum Out of Class Student Work/week	Minimum Out of Class Student Work/15wks	Total Instructional contact time & out of class student work
1	50 mins.	750 mins.	100 mins.	1500 mins.	2250 mins. (37.5 hours)
2	100 mins.	1500 mins.	200 mins.	3000 mins.	4500 mins. (75 hours)
3	150 mins.	2250 mins.	300 mins.	4500 mins.	6750 mins. (112.5 hours)



4	200 mins.	3000 mins.	400 mins.	6000 mins.	9000 mins. (150 hours)
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*\*Examples are calculated with respect to contact time and out-of-class student work.*

## B. Guidelines for Course Components in Which Credit is Primarily Assigned Based on Contact Time for Faculty-led or Faculty-directed Instruction

**Clinicals (CLN):** Participation, including observation, in patient/client and patient/client-related services that are an integral part of student learning experiences within an academic program. Clinical instruction can occur within, or outside of, an institutional setting, and involves students observing or working with patients/clients who receive professional services from either the student and/or a clinical preceptor who may be a faculty member and/or a professional in the field. The minimum instructional contact time per credit is typically two-times that of a lecture (2:1 ratio).

**Field Studies (FLD):** Courses of study involving instructional activities conducted by the faculty and designed to supplement and/or extend an individual course or classroom experience. The minimum instructional contact time per credit is typically two times that of a lecture (2:1 ratio).

**Laboratory (LAB):** Instructional activities designed and overseen by a faculty member which require student participation, experimentation, observation, or practice. This includes clinical simulation laboratories. The minimum instructional contact time per credit is typically two-times that of a lecture (2:1 ratio).

**Main Lab Section (MLB):** Stand-alone labs involving instructional activities designed and overseen by a faculty member which require student participation, experimentation, observation, clinical simulation, or practice. The minimum instructional contact time per credit is typically two-times that of a lecture (2:1 ratio).

**Recitation (REC):** A course or section of a larger course, designed for group discussion or student recitation. The minimum instructional contact time per credit is equal to that of a lecture (1:1).

**Seminar (SEM):** Highly focused course that may include student presentations and discussions of reports based on literature, practice, problems, or research (e.g. capstone course). The minimum instructional contact time per credit is equal to that of a lecture (1:1).

**Studio (STU):** Courses with a focus on hands-on learning under the direct supervision of a faculty member wherein the student works to develop technical or creative skills respective to the area of study (e.g. architecture, music, visual arts, etc.). The minimum instructional contact time per credit is typically 1.5 times that of a lecture (1.5:1 ratio).

**Workshops:** Courses with a focus on experiential learning under the direct supervision of a faculty member wherein the student performs substantive work in a workshop setting to develop technical or creative skills using the facilities and equipment respective to the area of study. The minimum instructional contact time per credit is equal to that of a lecture (1:1).

## C. Guidelines for Course Components Which May Involve Less Contact Time for Faculty-led or Faculty-directed Instruction and the Academic Program Defines the Number of Credits Awarded

These course components may involve less direct faculty involvement and more independent work by the student as compared to those listed in sections A and B. These courses may include a student working with a faculty member in a highly focused or specialized project. The amount of assigned credit is based on the program's determination of the effort required by a student to achieve the designated learning outcomes. In making this determination the academic unit/program should consider multiple factors including: (i) the knowledge and/or experience gained; (ii) the scope and level of the following activities; experiential and/or hands-on and/or research and/or creative and/or written work; and (iii) the hours involved to achieve learning outcomes.

**Dissertation (DIS):** A dissertation, an original investigation showing mature scholarship and critical judgment, demonstrating knowledge of research tools and methods, required for graduation at the Doctoral degree level.

**Independent Studies (IND):** Course of study where a student is formally enrolled during a period of research or independent study instruction in which the faculty interacts and directs student projects or other required activities with minimal associated direction.

**Internship (INT):** Course of study involving placement at an approved business, organization, industry or clinical environment that offers degree seeking students professional-level experience and responsibility. Applied and supervised field-based learning experience where students gain practical experience following a negotiated and/or directed plan of study.

**Research (RSC):** Student projects or other required activities with minimal faculty associated direction where a student is formally enrolled during a period of research.

**Thesis (THE):** A thesis which may be research or expository, critical or creative work, required for graduation with a Master's degree.

**Practicum (PRA):** Practical student work under the supervision of a faculty member or under supervision of a professional in the student's field and regular consultation with faculty member.

**Other (OTH):** Non-standard course offerings, such as Honors, Independent Research, Capstones, etc. that do not match the description of any other component type. If there is a course that meets outside of the standard contact time and outside student work requirements this must be established and documented.

## Course Scheduling Notes

Courses can be offered at a shortened, accelerated pace, in which the credit hours assigned are the same as standard semester courses. These courses must meet the total amount of instructional and student work time as the examples above, even if delivered within an accelerated time frame. Variable length sessions (e.g. 5-week or 8-week) can be created as needed.

**Note on Fractional Credit Hours:** Courses may be created and offered in increments of half credits (e.g. 1.5 credits). Fractional credit courses are typically part of a course sequence and taught progressively in special sessions within a term. For example, two fractional courses may be offered in back-to-back sessions within a given semester. Minimum required contact hours must be prorated accordingly for fractional

credit courses (e.g. 1.5 credits or 22.5 contact hours = 1,125 contact mins. + 2,250 mins. out-of-class work). For academic and administrative purposes, fractional credits are calculated and treated at their assigned value. They are not rounded in credit totals for graduation or degree requirements, tuition calculations, enrollment status and verification, participation eligibility, etc.

**Note on Continuing Education Units:** Continuing Education Units are measured as one tenth of an hour of instruction per hour. (1 hour of instruction = .1 CEU)

## Instructional Modalities/Modes of Instruction

Course instruction can be provided in a number of various delivery modalities and still equate to the same learning outcomes and credit hour assignment provided for the course. The Department of Education offers the following definition of distance education as a guideline for electronic instructional delivery:

**U.S. Department of Education, Distance Education Definition (34CFR 600.2\*\*):**

*Distance education means education that uses one or more technologies listed in paragraphs (1)(i) through (1)(iv) of this definition to deliver instruction to students who are separated from the instructor or instructors, and to support regular and substantive interaction between the student and the instructor or instructors, either synchronously or asynchronously.*

1. The technologies that may be used to offer distance education include –
  - (i) The internet;
  - (ii) One-way and two-way transmissions through open broadcast, closed circuit, cable, microwave, broadband lines, fiber optics, satellite, or wireless communications devices;
  - (iii) Audio conferencing; or
  - (iv) Other media used in a course in conjunction with any of the technologies listed in paragraphs (1)(i) through (1)(iii) of this definition.

**\*\* U.S. Department of Education, Distance Education Definition Current proposed language, May 2019**

## University of Colorado Denver | Anschutz Medical Campus Instructional Modalities

**In-Person Courses:** Courses offered primarily in face-to-face sessions with a pre-determined meeting pattern that contain direct interaction with a faculty member. Contact time is assessed using the guidance in Course Component Sections A and B.

**Hybrid Courses:** Courses offered primarily in a blended format with 1 or more on-site face-to-face class sessions and at least one or more online sessions, both containing interaction with a faculty member. Contact time is assessed using both the in-person definition (for the in-person portion) and online definition below (for the online portion).

**Online Courses:** Courses offered asynchronously, mostly online without any face-to-face meetings. Contact time is satisfied by several means including instruction or interaction with a faculty member, interactive tutorials, discussions and class projects that engage peers and are overseen by faculty.

**Remote Courses:** Courses offered primarily via Zoom or similar technology with a pre-determined meeting pattern that contains direct interaction with a faculty member. Contact time is assessed using the in-person definition.

## State and Federal Governing Guidelines for Credit and Contact Hours

The Colorado Commission on Higher Education and the U.S. Department of Education have guidelines about credit hour assignments and/or definitions. Those are as follows:

### Colorado Commission on Higher Education:

Colorado Commission on Higher Education Full-Time Equivalent (FTE) Reporting Guidelines and Procedures, April 2019 (<https://cdhe.colorado.gov/sites/highered/files/2020-03/v-partb-guidelines.pdf>)

*To establish a statewide approach for reporting FTE student enrollment, CCHE and IHEs have established criteria for assigning credit hour values to courses, since 1985. Those values are continued as these updated guidelines reflect. This section identifies the typical relationship between base contact hours, credit hours and types of faculty involvement.*

- *Base Contact Hour: The faculty Base Contact Hour represents a standard measurement of consumption of faculty resources by students. It consists of the number of scheduled minutes of instructional activity involving direct contact of faculty with students in a given term utilizing a particular method of instruction.*

*The standard measurement for a faculty Base Contact Hour except for the instructional activities listed in Table II is:*

- *Semester System Term: One Base Contact Hour = a minimum of 750 minutes. This translates to a minimum of fifteen 50-minute hours per semester.*
- *Quarter System Term: One Base Contact Hour = a minimum of 500 minutes. This translates to a minimum of ten 50-minute hours per quarter.*

Please note: Table II references specific instructional activities for which the institution is required to define the assigned credit hours. All are referenced in the sections below for *Credit Hour Guidelines by Type of Course Instruction* and *Credit Hour Guidelines by Type of Instructional Activity*.

### U.S. Department of Education, Credit Hour definition (34CFR 600.2):

*... a credit hour is an amount of student work defined by an institution, as approved by the institution's accrediting agency or state approval agency, that is consistent with commonly accepted practice in postsecondary education and that—*

1. *Reasonably approximates not less than—*
  - (i) *One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different period of time; or*
  - (ii) *At least an equivalent amount of work as required in paragraph (1)(i) of this definition for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.; and*
2. *Permits an institution, in determining the amount of work associated with a credit hour, to take into account a variety of delivery methods, measurements of student work, academic calendars, disciplines, and degree levels.*

## Term Structure at University of Colorado Denver | Anschutz Medical Campus

The University of Colorado Denver | Anschutz Medical Campus follows a semester term system with a standard-based academic calendar for the purposes of Title IV financial aid delivery. Semesters typically include 15 weeks of instruction, in addition to one finals week and one break week in the Fall and Spring semesters. Summer sessions are typically less than 15-weeks, but adhere to the policy in terms of contact hours and the amount of work required. Sessions within the semester term may also be scheduled for certain academic programs (for example, variable length sessions) that have a shorter number of weeks.

## Grades

Final grades are typically available within two weeks following the end of an academic term via the student portal.

## GPA Calculation

GPA is computed by multiplying the credit points per hour (for example, B = 3) by the number of semester hours for each course. Total the hours, total the credit points and divide the total points by the total hours. Grades of P, NC, \*\*\*, W, IP, and I are not included in the GPA. I grades that are not completed within one year are calculated as F in the GPA.

If a course is repeated, all grades earned are used in determining the GPA. Grades received at another institution are not included in the University of Colorado GPA.

Undergraduate, graduate and non-degree graduate GPAs are calculated separately. Enrollment in a second undergraduate or graduate program will not generate a second undergraduate or graduate GPA.

Students should refer to their academic dean's office for individual GPA calculations as they relate to academic progress and graduation from their college or school.

### Sample GPA Calculation

Grade Earned:	Credit Points per Hour:	x Credit Hours:	= Credit Points in Course
A	4.000	4.000	16.000
A-	3.700	4.000	14.800
B+	3.300	4.000	13.200
P	-	3.000	(excluded)
F	0	3.000	0

## Grading System

The instructor is responsible for the grade symbol (e.g., A, B, C, D, F, I or IP, etc.) to be assigned. Special symbols (NC and W) are indications of registration or grade status and are not assigned by the instructor.

Standard Grades	Quality Points
A = superior/excellent	4.000
A(-) =	3.700
B(+) =	3.300
B = good/better than average	3.000
B(-) =	2.700
C(+) =	2.300
C = competent/average	2.000
C(-) =	1.700
D(+) =	1.300

D =	1.000
D(-) = minimum passing	0.700
F = failing	0

Note: Instructors may, at their discretion, use the **plus/minus** system but are not required to do so.

Grade	Explanation
***	Student is currently enrolled in the course or a final grade has not been submitted
H	Honors/Highest Achievement (Specified courses at the Anschutz Medical Campus or for Honors Department courses on other campuses. Excluded from GPA)
HP	High Pass (School of Medicine at the Anschutz Medical Campus. Excluded from GPA)
I	Incomplete (Converted to an F if not completed within one year)
IP	In Progress (Thesis/dissertation at the graduate level or other specified courses)
NC	No Credit or Audit (Excluded from GPA and credit totals)
P	Passing (Under Pass/Fail option, grades of D- and above convert to a P. P is equivalent to D+, D or D- beginning Spring 2020. See P+ below. Specified courses may also be graded on a Pass/Fail basis. Excluded from GPA)
P+	Pass (Under Pass/Fail option, grades of C- and above converted to P+ beginning Spring 2020 to address non-standard grading during a global pandemic. Excluded from GPA)
PR	Pass with Remediation (Anschutz Medical Campus. Excluded from GPA)
W	Withdrew

## No Credit

Students may register for a course on a no-credit basis with the consent of their instructor and the dean of their school or college. No grade or credit is awarded, and tuition assessed is equivalent to the for-credit rate. The transcript reflects the name of the course taken and an N/C notation.

## Incomplete Grades

An I is an incomplete grade. Policies with respect to I grades are available in the individual School, College, or Program offices.

An I is given only when students, for reasons beyond their control, have been unable to complete course requirements. A substantial amount of work must have been satisfactorily completed before approval for such a grade is given.

The instructor who assigns an I sets the conditions under which the course work can be completed and the time limit for its completion. The student is expected to complete the requirements by the established deadline and not retake the entire course.

It is the instructor's and/or the student's decision whether a course should be retaken. The student must re-register for the course and pay the appropriate tuition.

The final grade (earned by completing the course requirements or by retaking the course) does not result in deletion of the I from the

transcript. A second entry is posted on the transcript to show the final grade for the course, with a notation that the course was 'originally graded as incomplete.'

At the end of one year, I grades for courses that are not completed or repeated are changed to an F.

## Course Numbering

The information below provides the general guidelines by which course numbers are assigned for the CU Anschutz Medical Campus; some variances to the structure below may exist. Please contact the Office of the Registrar with any questions about course numbering.

Courses are comprised of a 4-digit number, preceded by the alpha department/subject code.

- The first digit of a course are indicative of the academic level:
  - 0: lower level or remedial, not applicable toward graduation
  - 1: Undergraduate freshman level
  - 2: Undergraduate sophomore level
  - 3: Undergraduate junior level
  - 4: Undergraduate senior level
  - 5: 1st year professional
  - 6: Masters level or 2nd year professional
  - 7: Doctoral level or 3rd year professional
  - 8: Doctoral level or 4th year professional; must be used for doctoral level thesis
- Second and third digits:
  - 00-83: To be used for all courses with the exception of the following:
    - 84-90: Independent Study
    - 91: Practicum
    - 92: Readings
    - 93: Internships
    - 94: Master's candidate
    - 95: Master's report
    - 99: Doctoral thesis
- Fourth digit:
  - Each school, college, or department should determine its own structure for use of this numeric position.

## Registration

### Auditing Courses and No Credit Registration

A student may not audit courses at the Anschutz Medical Campus. Instead, a student who has been officially accepted may register in a course for no credit and pay the appropriate tuition and fees. Students must indicate no credit registration at the time of registration or during the drop/add period.

"Request for No Credit" forms are available through the Registrar's Office website ([https://www1.ucdenver.edu/docs/librariesprovider266/forms/nocreditrequest.pdf?sfvrsn=49d3a5b9\\_2](https://www1.ucdenver.edu/docs/librariesprovider266/forms/nocreditrequest.pdf?sfvrsn=49d3a5b9_2)).

### Canceled Classes

Courses listed in the schedule of courses are those currently offered by the schools, college and programs at Anschutz Medical Campus. The Anschutz Medical Campus reserves the right to cancel, postpone, divide, change the time of, and combine scheduled classes, and/or change

professors. Students enrolled in classes which are canceled will have the opportunity to add another class.

## Intercampus Registration

A degree-seeking student may enroll for 2 courses or 6 semester hours (whichever is greater) at the CU Colorado Springs campus and the CU Boulder campus with the approval of the student's academic dean or designate. Tuition and fees will be assessed at the student's home campus rate; however, the student must be enrolled for at least one course the entire semester on the home campus.

Intercampus registration forms must be obtained from the Registrar website ([https://www1.ucdenver.edu/docs/librariesprovider266/forms/intercampusenrollmentform.pdf?sfvrsn=e9d1a5b9\\_2](https://www1.ucdenver.edu/docs/librariesprovider266/forms/intercampusenrollmentform.pdf?sfvrsn=e9d1a5b9_2)). Once completed, the forms are to be taken to the Student's school/program for the appropriate approval and signature, and returned to the Registrar's Office.

Students may register concurrently during the drop/add period of the host campus. Questions concerning concurrent registration may be directed to the Registrar's Office at 303-724-8000.

## Northern Colorado Exchange Agreement

The University of Colorado in conjunction with Colorado School of Mines, Colorado State University, and the University of Northern Colorado have a reciprocal agreement by which students may take courses at participating institutions which are not offered at their home institutions.

For further information, please contact the Registrar's Office by email at [registrar@cuanschutz.edu](mailto:registrar@cuanschutz.edu) (Registrar@CUAnschutz.edu).

## Schedule Changes

### dropping courses

Students are permitted to drop courses during the first 10 class days of the fall and spring terms. Students are permitted to drop courses during the first 5 days of the summer term. Dropped courses will not appear on the student's transcript.

### withdrawing from courses

After the fifth (summer) or tenth (fall, spring) day of the term, courses can no longer be dropped. A student can withdraw from individual courses by completing a course withdrawal form. Both the instructor and the appropriate school/college/program signatures are required on the form.

Tuition will not be refunded, even if the withdrawal is allowed. A grade of "W" will appear on the transcript. In order to receive any type of tuition adjustment, the student will need to go through a formal appeals process with their school/college/program.

### withdrawing completely from the semester

Financial aid recipients who are withdrawing completely (dropping all classes) for a particular term should contact the Financial Aid and Scholarships Office (FASO) prior to withdrawing.

### adding courses

Students normally may add courses to their original registration during the first ten (10) days of the fall and spring semesters and during the first five (5) days of the summer term, provided there is space available and subject to the rules of the school/college/program offering the course.

Students receiving VA benefits must report any change in schedule to the veteran's representative in the Financial Aid and Scholarships Office (FASO).

## Tuition Assistance Benefit

Tuition Assistance Benefit (TAB) can be used by employees, or may be transferred to dependent(s). Employees must fill out a Tuition Assistance



Benefit application each semester they intend to utilize it for themselves or their dependents. Employees must decide who will use the benefit for each academic year, which runs from fall to summer.

- At CU Anschutz, only Nursing, Public Health and Graduate School courses are eligible for the benefit
  - The following courses are excluded from TAB eligibility: PUBH 6606 MPH Practicum, BIOS 6990 MPH Capstone Preparation - BIOS, CBHS 6990 MPH Capstone Preparation - CBHS, EHOH 6990 MPH Capstone Preparation - EHOH, EPID 6990 MPH Capstone Preparation - EPID, HSMP 6990 MPH Capstone Preparation - HSMP, and PUBH 6991 MPH Capstone Integration.
- The student is responsible for submitting the Student Insurance Waiver if they're covered by other insurance.
- Employees may register up to seven (7) days prior to the start of the semester or the first day of their desired class, whichever is earlier.

For more information on how to apply to TAB, guidelines, and process, please visit the TAB website <https://www.cu.edu/employee-services/benefits-wellness/current-employee/tuition-assistance> (<https://www.cu.edu/employee-services/benefits-wellness/current-employee/tuition-assistance/>)

## Student Records

### Transcripts, Enrollment/Degree Verifications, and Diplomas

#### Transcripts

Transcripts are the permanent and unabridged student educational record. Incompletes, failures and withdrawals are not expunged.

Transcripts will not be issued if the student has overdue financial obligations, or other outstanding obligations due to the University of Colorado.

To request an official transcript, please visit our ordering system supported by Parchment ([https://exchange.parchment.com/send/adds/?main\\_page=login&s\\_id=1pb1uMG8IVFThrLN](https://exchange.parchment.com/send/adds/?main_page=login&s_id=1pb1uMG8IVFThrLN)).

#### Enrollment Verifications

Need verification of your enrollment status for a lender or other provider? Current-semester enrollment verifications are typically available online starting in late September for Fall, and late February for Spring.

**To obtain an enrollment verification:**

1. Log in to your UCDAccess student portal (<https://www.ucdenver.edu/ucdaccess/>).
2. Click using the hamburger navigation menu at the top right of the screen, select the Registration & Records option from the drop down. Then click on the **Enrollment Verification** tile. This will take you to the student page of the National Student Clearinghouse website. You must be logged in through UCDAccess to obtain the free enrollment verification.
3. Click Obtain **Enrollment Certificate** to view and print an official verification.

The Verification of Enrollment is official and does not require a signature or seal from the University. It contains the dates of the term, student status and anticipated graduation date, and is specific to each student. This may be submitted to loan, insurance, or other requesting companies, as well as to the military as proof of enrollment.

#### Degree Verifications

A degree verification is not a diploma; it lists a student's degree on Office of the Registrar letterhead and bears the registrar's seal and signature.

Current and former students can order a degree verification by emailing their request to [Registrar@CUAnschutz.edu](mailto:Registrar@CUAnschutz.edu), which must include the student's name, student ID, date of birth, degree awarded (e.g. Doctor of Medicine, etc.), and the mailing or email address to which the verification should be sent.

Degree verification requests are processed in the order in which they are received, and take 3-5 business days to process.

#### Diplomas

##### How to Apply for Graduation: Meet With Your Advisor

Make an appointment with your assigned advisor in your school or college's Advising Center to verify graduation requirements and to make sure you'll meet them by the end of the semester.

- College of Nursing (<https://nursing.cuanschutz.edu/>)
- Colorado School of Public Health (<https://coloradosph.cuanschutz.edu/about-us/>)
- The Graduate School (<https://graduateschool.ucdenver.edu/about-us/>)
- School of Dental Medicine (<https://www.ucdenver.edu/academics/colleges/dentalmedicine/AboutUs/Pages/ContactUs.aspx>)
- School of Medicine (<https://medschool.cuanschutz.edu/deans-office/about-us/contact-us/>)
- Skaggs School of Pharmacy and Pharmaceutical Sciences (<https://pharmacy.cuanschutz.edu/about-us/>)

##### Apply for Graduation

Once you have verified that you're on track to graduate, use your UCDAccess student portal to apply for graduation:

1. Once logged in, click on Academics under your Student Center.
2. Click Apply for Graduation

**Please note:** Your Intent to Graduate Form needs to be submitted between the first day of school and the last day to drop/add classes of the term you intend to graduate.

##### Want to Walk at Graduation?

If you plan to participate in commencement ceremonies, you will need to register for this separately on the Commencement website.

Website: [www.cuanschutz.edu/commencement](http://www.cuanschutz.edu/commencement) (<http://www.cuanschutz.edu/commencement/>)

#### Important Notes Regarding Diplomas and Graduation

- Watch for information concerning transcripts, diplomas, Commencement, etc., via email through your CU Anschutz account following the acceptance of your graduation application.
- Diplomas for degrees conferred at Anschutz Medical Campus are automatically mailed out to the diploma address in the student's record.

## Schools, Colleges, and Programs

### Schools, Colleges, Programs, & Departments

- Center for Interprofessional Practice and Education (CIPE) (p. 65)
- College of Nursing (p. 67)
  - Nursing (BS) (p. 82)
  - Nursing - Master of Science (MS) (p. 85)
  - Nursing Certificates (p. 91)
  - Nursing - Doctorate in Nursing Practice (DNP) (p. 95)
  - Nursing (PhD) (p. 103)
- Colorado School of Public Health (p. 104)
  - Public Health (MPH) (p. 105)
  - Public Health Certificates (p. 118)
  - Public Health Dual Degree Programs (MPH) (p. 122)
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  - Physical Therapy (DPT) (p. 354)
  - Physician Assistant Studies (MPAS) (p. 399)
- Skaggs School of Pharmacy and Pharmaceutical Sciences (p. 410)
  - Online Pharmacy Programs (p. 412)
  - Pharmacy (PharmD) (p. 417)
  - Pharmacy Dual Degree Programs (p. 439)
  - Pharmacy Fellowships (p. 440)
  - Pharmacy Graduate Certificates (p. 440)
  - Pharmacy Master of Science (MS) Programs (p. 442)
  - Pharmacy Residencies (p. 445)
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  - School of Pharmacy PhD Programs (p. 446)

## Center for Interprofessional Practice and Education (CIPE)

The University of Colorado Anschutz Medical Campus was intentionally designed to facilitate interprofessional education. Education buildings

are shared amongst the 8 health professions programs on campus and students regularly interact both inside and outside the classrooms. At the heart of the education is the Fulginiti Pavilion which houses the Center for Bioethics and Humanities as well as the Center for Interprofessional Practice & Education Program.

**IPE Program Goal:** To improve population health, quality of care, and reduce health care costs through the creation of a patient-centered, collaborative, practice ready workforce with competencies in: quality and safety, values and ethics, and teamwork and collaboration in the context of systems and systems based practice.

**Our Longitudinal Goal:** IPE curriculum is being integrated into preclinical and clinical training for ALL University of Colorado health profession students and will establish, teach and evaluate campus-wide student competencies in teamwork, collaborative interprofessional practice and quality and safety, with a particular focus on vulnerable and underserved populations.

- The Interprofessional Education (IPE) Program develops, administers and evaluates the longitudinal interprofessional education curriculum for all health professions students on the CU Anschutz Medical Campus.
- The curriculum brings students together to learn and practice skills during their preclinical and clinical training.
- The IPE Program consists of 3 components: classroom team based learning, simulation experiences at the Center for Assessing Professional Excellence (CAPE), and practicum experiences at clinical sites.
- AMC graduates will be competent to participate as members of a collaborative interprofessional workforce.

**Discover more about each program that participates in Interprofessional Education on the CU Anschutz Medical Campus:**

- Dental Medicine (p. 218)
- Medicine (p. 249)
- Nursing (p. 67)
- Pharmacy (p. 410)
- Physical Therapy (p. 354)
- Physician Assistant (p. 399)
- Public Health (p. 104)

### Center for Interprofessional Practice & Education

Fulginiti Pavilion for Bioethics and Humanities

13080 E 19th Ave., Mailstop 8700

Aurora, CO 80045

Email: [ipehelp@cuanschutz.edu](mailto:ipehelp@cuanschutz.edu) ([ipehelp@cuanschutz.edu](mailto:ipehelp@cuanschutz.edu))

Phone: 303-724-6389

Fax: 303-724-6371

IPE Orientation occurs at the first week of September in the fall term usually on the same day as the AMC Welcome Wednesday event, and is an introduction to the importance of IPE in healthcare.

Students will have the opportunity to meet and work with their IPE team for the following term. It is a half day dedicated to the orientation of the Interprofessional Education (IPE) program and what to expect with Collaborative Team Paced Learning.

## Longitudinal IPE Curriculum Timeline: Interprofessional Collaborative Practice (IPCP)

The Interprofessional Collaborative Practice (IPCP) is a one semester course required of health professions students from the, dental, medical, nursing, pharmacy, physical therapy, and physician assistant programs on the Anschutz Medical Campus. There may also be students participating from the School of Public Health. The course takes place over 8 sessions in the spring of year 1. Sessions are two hours in length, and involve active learning in teams using a team paced learning method to engage learners in **Teamwork & Collaboration competency domains**:

### This course has 4 overarching goals: Teamwork & Collaboration

- Describe the process of team development and the roles and practices of effective teams
- Demonstrate communication skills and processes within teams
- Recognize components of and perform effectively on sequential and simultaneous interprofessional collaborative teams
- Provide feedback on individual and team performance to improve effectiveness of interprofessional teamwork

### Outcomes and Learning Objectives:

- Describe the process of team development, and the roles and practices of effective teams
- Communicate with team members to clarify each member's responsibility in providing collaborative patient care.
- Recognize components of and perform effectively on sequential and simultaneous interprofessional collaborative teams
- Explore interprofessional communication and teamwork processes which address the goals of collaborative patient care.
- Engage health and other professionals in shared patient-centered and population focused problem-solving.
- Give timely, sensitive, instructive feedback to others about their performance on the team, respond respectfully as a team member to feedback from others.
- Describe the potential impact of interprofessional collaboration on health care outcomes.

## Interprofessional Healthcare & Health Equity (IPHE)

The Interprofessional Healthcare Ethics and Health Equity (IPHE) is a one semester course required of health professions students from the, dental, medical, nursing, pharmacy, physical therapy, and physician assistant programs on the Anschutz Medical Campus. There may also be students participating from the School of Public Health. The course takes place over 8 sessions in the fall of year 2. Sessions are two hours in length, and involve active learning in teams using a team paced learning method to engage learners in **Value and Ethics competency domains**:

### This course has 3 overarching goals: Values & Ethics

- Awareness: recognize when you are facing an ethical issue
- Analysis: study the ethical issue to arrive at a decision about the right thing to do

- Action: develop and practice executing your plan for how to do what's right

### Outcomes and Learning Objectives:

- Identify health profession values, principles, and professional codes of ethics
- Understand the historical context of health professions ethics
- Identify social, structural, and systemic ethical issues and how they impact healthcare access, delivery of care, and patient outcomes
- Apply key ethical concepts to identifying and exploring ethical dilemmas
- Demonstrate approaches to addressing ethical dilemmas
- Demonstrate Interprofessional collaboration when addressing ethical dilemmas
- Compare and reflect on professional roles and responsibilities in the context of ethical dilemmas
- Identify the importance of situational leadership when facing ethical dilemmas

## Interprofessional Clinical Transformations (IPCT)

Clinical Transformations (CT) is a single simulation experience required of each student at the Center of Advancing Professional Excellence (CAPE). The timeline for this experience varies for each program. Students are placed in ad-hoc teams to practice the skills learned in IPED.

- **4 hour video monitored simulations:** students practice role shifts required to enable effective team leadership and followership
- **Scenarios:** acute care, outpatient, home visits
- **Team reflection:** Focus on teamwork & collaboration and address ethical and patient safety issues experienced in scenarios using briefs and debriefs

## Interprofessional Clinical Integrations (IPCI)

### Practicum Experiences at Clinical Sites

The third component of the IPE experience at CU also occurs at different times for each student dependent on the needs of their program and their clinical placements.

#### This component involves:

- Students learning and caring for patients in interprofessional teams
- Multiple settings including: hospitals, clinics, dental clinics, home visits, transitions in care, palliative care, special needs, etc.

#### CU IPE Open Campus Program activities: Starting Fall 2022

The CU Center for Interprofessional Practice and Education (CU CIPE) aims to foster interprofessional collaboration at CU Anschutz and graduate team-ready practitioners with the skills needed to collaborate as a member of an interprofessional team. In this effort, the CU CIPE offers faculty, staff, and students from all academic units, institutes, and programs to engage in the Interprofessional Open Campus Program (IOCP).

The IOCP connects students, faculty, and staff members from across the CU Anschutz campus, regardless of professional background, in

programming meaningful for the individual and the campus community. The IOCP consists of a menu of program offerings that resonate with the campus community. Additionally, IOCP offerings aim to be inclusive of all members of the AMC community whenever possible.

## College of Nursing

### Contact Information

Office location: Education II North, Room 3255  
 Mailing address: 13120 East 19th Avenue, 3rd Floor, Aurora, CO 80045  
 Phone number: 303-724-1812  
 Web Page: <https://nursing.cuanschutz.edu/>  
 Email: [nursing.admissions@ucdenver.edu](mailto:nursing.admissions@ucdenver.edu)

### College of Nursing Administration

Elias Provencio-Vasquez, PhD, RN, FAAN, FAANP - Dean and Professor

Amy J. Barton, PhD, RN, FAAN - Senior Associate Dean for Faculty and Professor | Daniel and Janet Mordecai Endowed Chair in Rural Health Nursing

Rosario Medina, PhD, RN, FNP-BC, ACNP, CNS, FAANP - Associate Dean of Clinical and Community Affairs and Professor

Kelly D. Stamp, PhD, NP-C, RN, CHFN-K, FAHA, FAAN - Associate Dean of Academic Programs and Associate Professor

Teri L. Hernandez, PhD, RN - Associate Dean of Research and Scholarship and Professor

Anthony Airhart, BBA - Associate Dean of Finance and Administration

Tammy Spencer, DNP, RN, CNE, ACNS-BC, CCNS - Assistant Dean of Undergraduate Programs and Assistant Professor

Peggy Jenkins, PhD, RN, CNE - Assistant Dean of Graduate Programs, Senior Assistant Dean of Academic Operations and Associate Professor

Jacqueline Jones, PhD, RN, FAAN, FRCNA - Assistant Dean of PhD Program and Professor

Laura D. Rosenthal, DNP, ACNP, FAANP - Assistant Dean of DNP Programs and Associate Professor

The College of Nursing offers the following programs:

Bachelor of Science in Nursing (p. 82)

Master of Science in Nursing (p. 85)

Nursing Certificates (p. 91)

Doctorate in Nursing Practice (p. 95)

Doctor of Philosophy ([https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)/](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)/))

### Teaching Faculty

Laurra Aagaard  
 Patricia Abbott  
 Heide Alexander  
 Claudia Amura  
 Jessica Anderson  
 Damara Andreoli

Julianne Arenson  
 Gail Armstrong  
 Amy Artmann  
 Kristiana Avery  
 Dawon Baik  
 Amy Barton  
 Susan Birch  
 Susan Bonini  
 Fara Bowler  
 Jean Burnkrant  
 Catherine Campisi  
 Suzanne Carrington  
 Heather Coats  
 Kate Coleman-Minahan  
 Teresa Connolly  
 Paul Cook  
 JoAnn Crownover  
 Jennifer Dailey-Vail  
 Lisa Diamond  
 Jennifer Disabato  
 Krista Estes  
 Cassandra Fishbein  
 Shelly Fischer  
 Jennifer Fisher  
 Katherine Foss  
 Kristine Gauthier  
 Sharon Giarrizzo-Wilson  
 Scott Harpin  
 Kelly Henrichs  
 Teresa Hernandez  
 Michael Horne  
 Lori Jackson  
 Catherine Jankowski  
 Peggy Jenkins  
 Linda Johnson  
 Rachel Johnson  
 Jackie Jones  
 Michaela Lewis  
 Patrick Luna  
 Tara Lynch  
 Mary Mackenburg-Mohn  
 Mary Beth Makic  
 Jill Marks  
 Laura McGladrey  
 Rosario Medina  
 Sylvia Metzger  
 Albert Moraska  
 Theresa Nino  
 Brenda Owen  
 Mustafa Ozkaynak  
 Angela Pal  
 Monica Panaitisor  
 Kim Paxton  
 Mona Pearl Treyball  
 Kerry Peterson  
 Shannon Pirrie  
 Heather Ponicsan  
 Pamela Prag  
 Sara Price Arora  
 Christine Rael  
 Krista Ray  
 Kathy Reed



Sean Reed  
 Kerri Reid  
 Britt Ritchie  
 Jessica Rolf-Sheppard  
 Jennifer Rosen  
 Laura Rosenthal  
 Sharon Sables-Baus  
 Stacey Seggelke  
 Kathy Shaw  
 Denise Smith  
 Karen Sousa  
 Tammy Spencer  
 Sarah Stalder  
 Kelly Stamp  
 Carmen Stephens  
 Trae Stewart  
 Samantha Stonbraker  
 Aimee Techau  
 Elisabeth Thumm  
 Lori Trego  
 Maggie Williams  
 Joshua Zucker

**NURS 3023 - Patient-Centered Health Assessment (3 Credits)**  
 Focus on knowledge, skills and attitudes needed for patient-centered assessment utilized in nursing practice. Evidence-based assessment skills acquired in the skills and simulation laboratory. Didactic content presented using case studies and multiple learning strategies.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 3.  
 Typically Offered: Fall, Spring, Summer.

**NURS 3034 - Foundations of Nursing Practice (4 Credits)**  
 Students investigate the relationship between theory and evidence-based practice to develop the foundations of a generalist nurse. Critical thinking, clinical judgement, and communication strategies are emphasized.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 4.  
 Typically Offered: Fall, Spring.

**NURS 3080 - Nursing Research and Evidence-Based Practice (3 Credits)**  
 This course will critically evaluate research and clinical expertise to determine optimal patient care utilizing professional writing.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 3.  
 Typically Offered: Fall, Spring, Summer.

**NURS 3140 - Pathophysiology for Nurses (3 Credits)**  
 Course will focus on essential concepts underlying pathophysiology and how they pertain to specific body systems. Principles of genetics, environment, cellular biology/adaptation, and immunity will be emphasized to facilitate understanding of exemplar disease processes across major human organ systems.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 3.  
 Typically Offered: Fall, Spring, Summer.

**NURS 3150 - Pharmacology for Nurses (3 Credits)**  
 Focus on essential knowledge and attitudes for beginning nursing practice using pharmaceutical agents. Emphasis on integrating knowledge from other foundational courses to learn safe medication practices using a body systems and drug families approach with evidence based foundations.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 3.  
 Typically Offered: Fall, Spring, Summer.

**NURS 3216 - NURS Honors Seminar I (1 Credit)**  
 Study of topics relevant to development of the senior thesis proposal and broader discussions and readings related to ethical and leadership roles in the profession of nursing. It is the first in a series of two, junior level Honors Seminars. Prerequisites: Junior level standing in the College of Nursing; enrolled in Honors Program.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall, Spring, Summer.

**NURS 3226 - NURS Honors Seminar II (1 Credit)**  
 Study of topics relevant to development of the senior thesis proposal and broader discussions and readings related to ethical and leadership roles in the profession of nursing. It is the second in a series of two junior level Honors Seminars. Prerequisites: Junior level standing in the College of Nursing; completion of Honors Seminar I; enrolled in Honors Program.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall, Spring, Summer.

**NURS 3267 - Health Promotion (2 Credits)**  
 Course explores health promotion and disease prevention in individuals, families, and populations across the lifespan. Determinants of health, health disparities, and levels of prevention are introduced. Cultural awareness, models/theories to promote health, and evidence based strategies are applied.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall, Spring, Summer.

**NURS 3337 - Nursing Care of Childbearing Families (5 Credits)**  
 Integrates family-centered care, evidence-based practice, safety, teamwork and collaboration, informatics, and quality with emphasis on application of the concepts of health promotion, development, and transitions inherent with childbearing. Prerequisite: Admission to the BS program, successful completion of all beginning level courses.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall, Spring, Summer.

**NURS 3447 - Nursing Care of Children and Families (5 Credits)**  
 Students learn to provide nursing care to children and families by integrating the principles of family-centered care, evidence-based practice, quality and safety, teamwork and collaboration, informatics, genetics, emphasizing health promotion, child development, disability, and transition into the community.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall, Spring, Summer.

**NURS 3567 - Mental Health Nursing Practice across the Lifespan (5 Credits)**  
 Focuses on intermediate level of application of knowledge, skills and attitudes of nursing care for patients with mental health issues. Students provide person-centered nursing care to individuals and groups with alterations in mood, cognition, and behaviors with their families across the lifespan and continuum of care. Department Consent Required.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 5.  
 Typically Offered: Fall, Spring, Summer.

**NURS 3617 - Medical-Surgical Nursing Practice I (6 Credits)**

Beginning level course focuses on applying pathophysiology, pharmacology and nursing assessment in providing care to individuals in a variety of environments. Students will learn foundational aspects of quality and safety competencies. Simulation will allow the beginning learner to apply knowledge and work on skill acquisition.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**NURS 3667 - Nursing Care of the Older Adult (2 Credits)**

Students build upon previous knowledge, skills, and attitudes to learn how to provide nursing care for a demographically large and diverse population of older adults. Areas examined include: polypharmacy, chronic conditions, physiologic changes, myths, stereotypes, and culturally diverse life experiences.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3727 - Clinical Progression (2 Credits)**

Clinical remediation is a required review of clinical competencies and professional role behaviors following interruption in the baccalaureate nursing program. An individualized learning contract will be developed. Demonstration of current competencies for safe care is required for continued progression. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3880 - Nursing Role and Practice (2 Credits)**

Learners explore the professional nurses' role in evolving healthcare systems. Context of learning is nursing history, theory, practice standards, issues and trends. Emphasis is futuristic for projections of professional nursing practice and effective teamwork. Foundational legal matters are interwoven throughout.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 4064 - Interprofessional Collaborative Practice (1 Credit)**

This course develops core competencies in teamwork and collaboration for incoming health professions students. Students will learn in interprofessional teams coached by interprofessional faculty, develop essential communication skills and processes for simultaneous and sequential teams, and provide feedback on individual and team performance.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**NURS 4074 - Inter-professional Healthcare Ethics & Health Equity (1 Credit)**

This course develops foundational knowledge and basic practical skills to identify, analyze, and resolve ethical and health equity issues in clinical practice through inter-professional collaboration and teamwork.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Fall.

**NURS 4080 - Professional Nursing: Transition into the Role (4 Credits)**

Learners explore the professional nurses' role. Context for learning is nursing history, theory, practice standards, ethical-legal parameters, including emerging issues and trends. Emphasis is on student preparation for transitioning into the professional role with its independent, interdependent, and collaborative functions.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring, Summer.

**NURS 4236 - NURS Honors Seminar III (1 Credit)**

Topics are relevant to the senior thesis and students' career development as leaders in nursing. Seminars provide opportunity for students to share progress and insights with peers and to engage in topical discussions.

First of two senior level Honors Seminars. Prerequisites: Senior level standing in the College of Nursing; completion of Honors Seminars I (NURS 3216) and II (NURS 3226); enrolled in Honors Program.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4246 - NURS Honors Seminar IV (1 Credit)**

Topics are relevant to the senior thesis and students' career development as leaders in nursing. Seminars provide opportunity for students to share progress and insights with peers and to engage in topical discussions.

Second of two senior level Honors Seminars. Prerequisites: Senior level standing in the College of Nursing; completion of Honors Seminars I (NURS 3216), II (NURS 3226) and III (NURS 4236); enrolled in Honors Program.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4617 - Nursing Care of the Adult Patient with Complex Care Needs (7 Credits)**

Building on concepts from previous coursework, apply theory, client-centered and evidence-based principles to comprehensively care for complex adult patients in acute care settings. Prerequisite: Successful completion of beginning and intermediate courses.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4727 - Independent Study (1-3 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

**NURS 4777 - Community & Population Focused Nursing (5.5 Credits)**

Course focuses on community-oriented & population-focused nursing practice. Using evidence-based practice & public health concepts; students assess, plan, implement, and evaluate health interventions to individuals, families, and populations. Emphasis is on environment, social justice, advocacy, interprofessional teamwork, and cultural awareness.

Prerequisite: Admission to the BS program. Successful completion of beginning and intermediate Nursing courses.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.5.

Typically Offered: Fall, Spring, Summer.

**NURS 4800 - Evidenced-Based Nursing Practice & Research for the RN (4 Credits)**

Course introduces research processes and application in EBP. RN students learn to critically evaluate research findings for application in safe, quality nursing practice. Nursing theories and ways of knowing are explored regarding their impact on development of nursing science.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4824 - Professional Nursing Role Development - RN (4 Credits)**

This course explores the influence of historical/philosophical foundations, issues, and future trends on professional practice and role development in RN-BS nursing education. Examines ethical decision-making, critical thinking, reflective practice, and accountability within the ethical and legal parameters of nursing practice. Prerequisite: Successful completion of all courses in the student's chosen sequenced program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring, Summer.

**NURS 4850 - Introduction to Health Care Informatics - RN (3 Credits)**

Understand and apply knowledge and skills in information and communication technologies to enhance the delivery of quality patient care. Concepts of data, information, knowledge and wisdom, to inform care delivery are examined. Professional roles and responsibilities will be explored.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4860 - Quality, Safety, & Innovative Nursing Practice-RN (4 Credits)**

Understand and apply QSEN knowledge, skills, and attitudes to improve and evaluate care delivery within a health care microsystem. Concepts and processes of quality improvement based on evidence are identified. Teamwork/communication/collaboration and transitions of care are explored.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4877 - Population-Based Nursing - RN (6 Credits)**

Course focuses on the professional nursing role in population-focused health promotion, disease prevention, and the continuum of care. Theories, concepts, and social determinants of health inherent in population-based nursing and transitions of care are explored through course work and practicum.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4887 - Nursing Leadership in Complex Organizations I (4 Credits)**

This course provides the foundation needed to provide oversight and accountability for care delivery across a variety of settings; continuing development as a leader/innovator in improving patient care; and a solid understanding of health care policy, economics, and complex organizations.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4897 - Nursing Leadership in Complex Organizations II (5 Credits)**

Explores nursing leadership roles in promoting positive patient outcomes. Uses evidence-based practice to facilitate clinical reasoning/inquiry in providing safe, quality, person-centered care. Professional development is promoted through transformational leadership & management competencies. Includes capstone quality improvement project.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4917 - Immersion in Clinical Nursing (8 Credits)**

Learning emphasizes synthesis of previous coursework/knowledge for transition to professional BS graduate nurse role. Through clinical immersion experiences, development of independent nursing practice, skills for safe, cost-effective, evidence-based clinical decision making & guided application of leadership & management theory & skills occurs.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5899 - Advanced Practicum (1-6 Credits)**

Clinical course that focuses on demonstrating competence in the Advanced Practice role with a selected population.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**NURS 5901 - AG CNS Advanced Practicum I (1-3 Credits)**

Clinical Nurse Specialist students begin to gather and organize data to base clinical decisions upon and promote moral agency. Students begin to advocate for patient and family health outcomes. Consultation and collaboration with an interdisciplinary team is emphasized. Prerequisite: NURS 6243; Co-requisite: NURS 6222, 6761

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5902 - AG CNS Advanced Practicum II (1-3 Credits)**

Clinical Nurse Specialist students demonstrate clinical decision making, refine diagnoses, and explore the role to influence of health systems change. Advocacy and moral agency for patient and family health outcomes continues. Consultation and collaboration with an interdisciplinary team are demonstrated. Prerequisite: NURS 6243; Co-requisite: NURS 6222, NURS 6761, NURS 5901

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5903 - AG CNS Advanced Practicum III (1-3 Credits)**

Clinical Nurse Specialist students adapt clinical decisions to manage ill and aging patients. Students advocate for advancing patient and family health outcomes. Advocacy and moral agency for health outcomes are incorporated into consultation and collaboration with an interdisciplinary teamwork. Prerequisite: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5902

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5904 - AG CNS Advanced Practicum IV (1-3 Credits)**

Clinical Nurse Specialist students formulate clinical decisions to manage ill and aging patients and patient and family health outcomes. Students practice as moral agents and are expected to manage health systems initiatives in consultation and collaboration with an interdisciplinary team. Prerequisite: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5903

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5911 - PNP Advanced Practicum I (3 Credits)**

Primary Care Pediatric Nurse Practitioner students begin to provide direct patient care, health screenings, and organize data for clinical decisions. Students work with patients and families to establish health goals. An interdisciplinary approach is emphasized in clinical and classroom settings. Pre-requisites: NURS 6243, NURS 6222, NURS 6761, co-requisite NURS 6478

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5912 - PNP Advanced Practicum II (3 Credits)**

Advanced beginner Primary Care Pediatric Nurse Practitioner students provide direct patient care, health screenings, and organize data for clinical decisions. Students begin to demonstrate interdisciplinary leadership and clinical decision making while working with patients and families to cultivate health goals. Requisite: NURS 5911, NURS 6478

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5913 - PNP Practicum III (3 Credits)**

Primary Care Pediatric Nurse Practitioner students provide direct patient care and integrate patient data to provide well child care and manage acute and chronic conditions. Interdisciplinary care coordination is emphasized to assist patients and families to meet health goals.

NURS 5911, NURS 5912, NURS 6478 Co-req: NURS 6488

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5914 - PNP Advanced Practicum IV (3 Credits)**

Primary Care Pediatric Nurse Practitioner students become competent at making clinical decisions for well child care, acute and chronic conditions, manage primary pediatric nursing care initiatives, and lead interdisciplinary teams to partner with patients and families to meet health goals. Prereq: NURS 6478, NURS 6488, NURS 5911, NURS 5912, NURS 5913 co-req: NURS 6496

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5921 - AC-PNP Practicum I (2 Credits)**

Acute Care Pediatric Nurse Practitioner students begin to provide direct patient care and gather and organize data for clinical decisions. Students will work with stable patients and families in primary care oriented settings. An interdisciplinary approach is emphasized. NURS 6243, NURS 6222, NURS 6761, NURS 6450; co-requisites: NURS 6450, NURS 6490

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5922 - AC PNP Advanced Practicum II (2 Credits)**

Acute Care Pediatric Nurse Practitioner students provide direct patient care and utilize patient and diagnostic assessment data to make clinical decisions. Students begin to demonstrate interdisciplinary collaboration when working with patients and families to support health outcomes.

Prerequisite: NURS 5921 Co-requisite: NURS 6456

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5923 - AC PNP Advanced Practicum III (3 Credits)**

Acute Care Pediatric Nurse Practitioner students provide direct patient care and integrate patient data to manage and support health outcomes for acute, complex, and chronic pediatric patients. Interdisciplinary care coordination across the continuum is emphasized.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5924 - AC-PNP Practicum IV (3 Credits)**

Acute Care Pediatric Nurse Practitioner students become competent at making clinical decisions for acute, complex, critical, and chronic conditions; use independent and collaborative decision making as members of interdisciplinary teams; and assist patients and families with navigating healthcare systems. NURS 5923; Co-requisite NURS 6510

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5925 - AC PNP Advanced Practicum V (3 Credits)**

Acute Care Pediatric Nurse Practitioner students evaluate and adapt therapeutic interventions, provide direct management for stable and unstable acute, complex, critical and chronic conditions; and advocate for improved patient/family outcomes through leadership on interdisciplinary teams and/or nursing initiatives. Prerequisite: NURS 5924 Co-requisite: NURS 6520

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5931 - FNP Practicum I (3 Credits)**

Family Nurse Practitioner students begin to provide direct patient care, physical and behavioral health screenings, and work with patients and their families to establish health and wellness goals. An interdisciplinary approach is emphasized in the clinical and classroom setting. Pre-req: NURS 6761, NURS 6222, NURS 6243

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5932 - FNP Practicum II (3 Credits)**

Family Nurse Practitioner students provide direct patient care through refining differential diagnoses based on available patient data. Students begin to demonstrate interdisciplinary leadership and clinical decision making while working with patients and their families to cultivate health and wellness goals. Pre-req: NURS 5931

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5933 - FNP Practicum III (4 Credits)**

Family Nurse Practitioner students provide direct patient care through integrating available physical and behavioral patient data into the management of acute and chronic conditions. Interdisciplinary care coordination is emphasized to assist patients and families to meet health and wellness goals. Pre-requisite: NURS 5931, NURS 5932

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5934 - FNP Practicum IV (4 Credits)**

Family Nurse Practitioner students make clinical decisions for acute and chronic conditions, manage primary nursing care initiatives, and lead interdisciplinary teams to partner with patients and families to meet health and wellness goals. Pre-Req: NURS 5931, NURS 5932, NURS 5933

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5941 - NMW Advanced Practicum I (2-4 Credits)**

This clinical course is designed to apply knowledge attained from didactic coursework in GYN and Care of the Childbearing Family I and develop skills and attitudes necessary to successfully manage the midwifery care of women in the outpatient setting. Prerequisite: NURS 6204, NURS 6344

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5942 - NMW Advanced Practicum II (4 Credits)**

Clinical course designed to apply knowledge attained from Care of the Childbearing Family II and Primary Care of Women and develop skills and attitudes necessary to manage the midwifery care of women and newborns in the inpatient and outpatient settings. Prerequisite: NURS 5941

Grading Basis: Letter Grade

Typically Offered: Summer.



**NURS 5943 - NMW Advanced Practicum III: Integration (8 Credits)**  
Culminating clinical experience of the 3-semester sequence of clinical courses. This experience combines all areas of the Core Competencies in full-time clinical participation. Prerequisite: NURS 5941, NURS 5942  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5951 - NMW Intrapartum Practicum I (2 Credits)**  
Clinical course facilitates development of nurse-midwifery management skills in delivering care to women in an inpatient setting, caring for antepartum, intrapartum, immediate postpartum and newborn patients. Deviations from normal allow for consultation, collaboration and referral within an interdisciplinary team. Pre-requisite: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5952 - NMW Intrapartum Practicum II (2 Credits)**  
Clinical course facilitates development of nurse-midwifery management skills in delivering care to women in an inpatient setting, caring for antepartum, intrapartum, immediate postpartum and newborn patients. Deviations from normal allow for consultation, collaboration and referral within an interdisciplinary team. Pre-requisites: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5953 - NMW Intrapartum Practicum III (2 Credits)**  
This course, combined with 6758 C30, is an advanced practicum experience where synthesis of didactic specialty courses and the nurse-midwifery management process can occur. The emphasis is on refinement of practice and transition to the role of a professional nurse-midwife. Pre-requisite: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5954 - NMW Intrapartum Practicum IV (4 Credits)**  
This course, combined with 6757 C15, is an advanced practicum experience where synthesis of didactic specialty courses and the nurse-midwifery management process can occur. The emphasis is on refinement of practice and transition to the role of a professional nurse-midwife. Pre-requisite: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5961 - WHNP Advanced Practicum I (3 Credits)**  
This clinical course is designed to apply knowledge attained from didactic coursework and develop skills and attitudes necessary to successfully manage reproductive health in the outpatient environment. The student must meet the competency of each expected outcome by the end of 135 clinical hours. Requisite: NURS 6761, NURS 6243, NURS 6222  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5962 - WHNP Advanced Practicum II (4 Credits)**  
This clinical course is designed to apply knowledge attained from didactic coursework and develop skills and attitudes necessary to successfully manage reproductive/ sexual health in the ambulatory care environment. Pre: NURS 5961, Co-requisite: NURS 5963  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5963 - WHNP Advanced Practicum III (3 Credits)**  
This clinical course s designed to apply knowledge attained from didactic course work and develop skills and attitudes necessary to successfully manage complex reproductive /sexual health in the ambulatory care environment. Pre: NURS 5961, Co-requisite: NURS 5962  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5964 - WHNP Advanced Practicum IV (4 Credits)**  
Culminating clinical experiences of the Women's Health Nurse Practitioner Program, this experience combines all areas of core competencies and in consultation with the preceptor. Pre: NURS 5963  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5971 - AGPCNP Practicum I (3 Credits)**  
Clinical course that refine competencies as an Advanced Practitioner with a selected client population. The student must achieve a minimum of competency demonstrated 10 outcome areas by the end of 135 cumulative hours. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5972 - AGPCNP Practicum II (3 Credits)**  
Clinical course that refines competencies as an Advanced Practitioner with a selected client population, 19 outcomes are assessed. A minimum competency must be demonstrated in each outcome area by the end of 135 course clinical hours and cumulatively 270 hrs. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5973 - AGPCNP Practicum III (3 Credits)**  
Clinical course to refine competencies as an Advanced Practitioner with a selected client population. 23 outcomes are assessed. Student achievement of "at expected level" for each outcome area demonstrated by the end of 135 clinical hours and cumulatively 405 hrs. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5974 - AGPCNP Practicum IV (3 Credits)**  
Clinical course to refine competencies as an Advanced Practitioner with a selected client population. 24 outcomes are assessed. Student achievement of "at expected level" for each outcome area demonstrated by the end of 135 clinical hours and cumulatively 540 hrs. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5981 - AGACNP Practicum I (3 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students begin to provide direct patient care and gather and organize data for clinical decisions. Students work with stable, acute patients and their families. Interdisciplinary approach is emphasized. Acute care NP role is explored. Pre: NURS 6243, NURS 6222 Pre/Co: NURS 6761, NURS 6599  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5982 - AGACNP Practicum II (3 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students provide direct patient care and utilize patient and diagnostic assessment data to make clinical decisions. Students begin to demonstrate interdisciplinary collaboration when working with patients and families. Acute care NP role is demonstrated. Pre: NURS 6243, NURS 6222, NURS 6600, NURS 6761, NURS 5981  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5983 - AGACNP Practicum III (4 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students provide direct patient care and integrate patient data to manage and support patients with stable and unstable acute conditions. Interdisciplinary care coordination is emphasized. Students adapt situationally in the acute care NP role. Pre: NURS 6600, NURS 5982 Co: NURS 6620  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5984 - AGACNP Practicum IV (4 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students become competent at making clinical decisions for stable and unstable acute patient conditions. Independent and collaborative decision making as members of interdisciplinary teams is highlighted. Students perform in the acute care NP role. Pre: NURS 6620, NURS 5983 Co: NURS 6610  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 5991 - PMHNP Advanced Practicum I (2 Credits)**

For the PMHNP student, competencies for this level include a psychiatric evaluation and beginning skills in individual and group therapies across the lifespan. The student must meet the competency of each expected outcome by the end of 90 clinical hours. Requisite: NURS 6761  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5992 - PMHNP Advanced Practicum II (3 Credits)**

For the PMHNP student, competencies for this level include developing shared decision-making of evidence-based psychopharmacology and enhanced communication skills in individual and group therapies across the lifespan. The student must meet all outcomes by the end of 135 clinical hours. Requisite: NURS 5991, NURS 6664  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5993 - PMHNP Advanced Practicum III (3 Credits)**

For the PMHNP student, competencies for this level include adapting treatment planning, pharmacotherapies and non-pharmacotherapies to multiple populations based on evidence-based strategies and culturally sensitive relationship development. The student must meet all outcomes by the end of 135 clinical hours. Requisite NURS 5992, NURS 6664, NURS 6665  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 5994 - PMHNP Advanced Practicum IV (6 Credits)**

For the PMHNP student, competencies include the management of complex treatments plans based on evidence-based pharmacological and non-pharmacological interventions for mental disorders across the lifespan and settings. The student must meet all outcomes by the end of 270 clinical hours. Requisite: NURS 5993, NURS 6664, NURS 6665  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 6009 - Theory Foundation for Advanced Nursing (3 Credits)**

The course provides an introduction to nursing's philosophical, ethical, and theoretical frameworks as guides for practice. Nursing theories, grand, middle-range, and ways of knowing will be analyzed. Students will develop a beginning model for practice based on their nursing philosophy.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 6015 - Women & War (3 Credits)**

Roles of women during war, gender specific policies, deployment considerations including reproductive & urogenital health, military sexual trauma, and psychological effects of deployment. Appraise women's experience, roles in the family, reintegration to community, and selected issues related to war-time service.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6017 - On the Home Front: Supporting Vet & Military Families! (3 Credits)**

Dynamics and attributes of military/veteran families during and after military service. Explores issues of deployment, reintegration, parenting, compassion fatigue, and living with sequelae of combat stress (family violence, suicide, homelessness, PTSD) Evaluates preparation of civilian providers and family care interventions.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6018 - Home from the Battlefield: Psychological Health Care (3 Credits)**

Introduction to veteran/military culture and historical perspectives of war. Exploration of post-traumatic stress disorder, traumatic brain injury, suicidality and effects of psychological health on family and parenting. Issues related to diversity, reintegration, redeployment, health care navigation and ethics.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6019 - Wounds of War: Military & Veteran Disability Evals (3 Credits)**

Detailed examination of military/veteran integrated disability evaluation system including processes, policies, clinical conditions, & complex case studies. Investigate benefits associated with service-connected disabilities, special considerations for Reserve/Guard members, & assistance in preparing for disability evaluation and appeals.  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**NURS 6023 - Veteran and Military Health Care Systems (3 Credits)**

Sociopolitical, economic, ethical and current national health care issues confronting the veteran and military health care delivery systems. Examination of overall structure, functions, and processes, and influence of these contextual elements on policies guiding/regulating the organization/delivery of services.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6024 - Caring for Veterans: Aging, Chronicity, & End of Life (3 Credits)**

Explores aging/chronicity in veteran populations, environmental exposures in military environments, and long term effects of chemical, biological, radiological, nuclear, explosive materials. Examines specific service connected conditions for veterans of Vietnam, Gulf War, and Iraq/Afghanistan and end-of-life care.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6025 - Veteran and Military Health Care Admin Internship (2 Credits)**

This course enables students to integrate and apply veteran and military health care competencies in an advanced nursing practice role. The preceptored internship facilitates engagement in administrative roles and empowers students to innovate in health care delivery practices.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6070 - Policy and Politics of Health (3 Credits)**

This course prepares students to promote health by examining the influence of policy at local, state, national and global levels. Students will analyze healthcare policies in the context of emerging models of care, and ethical, social, political and legal environments.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6107 - Research & Quality Improve Methods: Principles of Evidence (3 Credits)**

This course focuses on methods of knowledge generation applicable to advanced practice nursing. Quantitative and qualitative methods are presented in the context of evidence-based practice. Students will evaluate evidence from multiple sources, including research knowledge, clinical expertise, and patient preference.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6108 - Inferent Statistics & Quality Improvement Applying Evidence (3 Credits)**

This intermediate research and QI methods course covers database management, descriptive statistics, correlation, prediction and regression, hypothesis testing, and analytic methods for quality improvement projects. Material is made relevant to nursing by use of actual nursing research studies as examples.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6109 - Evidence-Based Practice: Evaluating Evidence (3 Credits)**

Evidence-based Practice: Evaluating Evidence integrates beginning research and statistics knowledge to guide in the development of PICOT questions to address health priority issues. Skills in finding, appraising, and synthesizing evidence to improve quality, safety and cost-effectiveness of patient care

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6222 - Adv Pharm & Therapeutics (3 Credits)**

This course prepares advanced practice nursing students to manage drug therapy for various client populations and settings. Pharmacokinetic and pharmacodynamic principles and evidence-based practice form the foundation for consideration of the pharmacotherapeutics of selected conditions and drug groups. Prereq: NURS 6243.

Grading Basis: Letter Grade

**NURS 6243 - Adv Pathophysiology (3 Credits)**

Advanced concepts of the dynamic aspects of disease processes provide a foundation for the assessment and management of acutely or chronically ill clients. Epidemiology, etiology, genetics, immunology, lifespan and cultural concepts, diagnostic reasoning, and current research findings are integrated throughout. Prereq: Graduate standing or permission of instructor.

Grading Basis: Letter Grade

**NURS 6274 - Semantic Representation (3 Credits)**

Introduces the concept of classifying nursing phenomena to facilitate data management and retrieval. Topics include: minimum data sets, nursing language, classification systems and vocabularies, and relates each topic to nursing practice, administration, and research.

Grading Basis: Letter Grade

**NURS 6279 - Knowledge Management (3 Credits)**

The need for knowledge discovery, distribution, and management in clinical settings is examined. Knowledge Management techniques (probabilistic/ statistical models, machine learning, data mining, queuing theory, computer simulation) are examined. The specification of a knowledge management comprehensive system for healthcare is developed. Prereq: Minimum of one informatics course or permission of instructor.

Grading Basis: Letter Grade

**NURS 6284 - Digital Tools for Connected Health (3 Credits)**

This course examines the use of digital tools to foster engagement of patients, families and consumers in their health care. This course examines the evidence and the legal, ethical, social and policy issues within the context of connected health.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6285 - HCI Design Principles (3 Credits)**

Examines the relationship of interface design to effective human interaction with computers. This course examines principles, theory and models to design and evaluate optimal interfaces to promote human computer interaction in health care informatics applications. Online course skills.

Grading Basis: Letter Grade

**NURS 6286 - Foundations Informatics (3 Credits)**

This introductory course focuses on core concepts, skills, tools that define the informatics field and the examination of health information technologies to promote safety, improve quality, foster consumer-centered care, and efficiency.

Grading Basis: Letter Grade

**NURS 6289 - Information Systems Life Cycle (4 Credits)**

This course focuses on a structured approach to information system development and implementation. The course addresses the five phases of the life cycle: planning, analysis, design, implementation and evaluation. Prereq: Minimum of one informatics course or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6293 - Database Mgmt Systems (3 Credits)**

An interdisciplinary course focused on design and application challenges in database management systems. Concepts of database modeling, querying, and reporting are explored. Students apply database concepts to clinical registries and Meaningful Use queries. Prereq: NURS 6304 or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6303 - Epidemiology & Health (3 Credits)**

Concepts and methods of epidemiology are applied to advanced nursing practice. Disease causation models and environmental factors are used to examine risks. Issues of environmental justice, models of health promotion, and disease prevention for populations will be examined and evaluated. Prereq: Graduate standing or permission of instructor.

Grading Basis: Letter Grade

**NURS 6344 - NMW Gynecologic Care (3 Credits)**

This course facilitates development of critical thinking necessary for the application of midwifery management of women for well woman gynecologic care, including routine screening and health promotion, and problem-oriented gynecologic care, including screening, diagnosis, medication management, and collaborative management or referral of women with gynecologic abnormalities. Prerequisites: NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6374 - NMW/WHNP Adv Clinical Skills - Outpatient (1 Credit)**

Clinical skills and simulation course provides training in skills necessary to provide antepartum and gynecologic care, with additional instruction in working as a member of an interprofessional team.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6375 - NMW Advanced Clinical Skills - Inpatient (1 Credit)**

Clinical skills and simulation course provides training in skills necessary to provide intrapartum and newborn care, with additional instruction in working as a member of an interprofessional team. NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 6376 - Reproductive Physiology (3 Credits)**

This comprehensive course on human reproduction focuses on women's health, maternal, fetal, neonatal anatomy and physiology, and physiology of human lactation, with additional focus on pharmacology in pregnancy and lactation. Prerequisites: NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6377 - Foundations of Midwifery Care (2 Credits)**

Overview of the basic components of midwifery care in the United States and globally, including midwifery-specific history, philosophy, ethics, finance, scholarship, and epidemiological aspects of care for women.

Prerequisites: NURS 6009, NURS 6859

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6378 - Care of the Childbearing Family I (3 Credits)**

This course facilitates development of critical thinking necessary for the advanced practice management of women during the antepartum and postpartum periods, including screening, diagnosis, collaborative management or referral of women at risk for complications. Prerequisites: NURS 6190, NURS 6192, NURS 6344; Co-requisite NURS 5941

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6379 - Care of the Childbearing Family II (4 Credits)**

Facilitates development of critical thinking and clinical reasoning necessary for nurse-midwifery management of women during the peripartum and immediate postpartum periods and the well newborn during the first 28 days of life. Prerequisites: Prerequisite: NURS 6378; Co-requisite NURS 5942

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**NURS 6434 - FNP Care of the Pediatric Patient (3 Credits)**

This course provides FNP students with evidence-based research and practice guidelines to provide acute, chronic, and behavioral health in the pediatric primary care setting. Cultural, socioeconomic, and geographic factors influencing the pediatric patient and population health outcomes will be explored. NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6450 - Advanced Pediatric Physical Assessment (1 Credit)**

This course builds on previously learned physical assessment skills to prepare the pediatric nurse practitioner to conduct comprehensive and focused assessments. Critical thinking is emphasized as primary means for collecting and analyzing data obtained from the history and physical examination. Pre-requisite: NURS 6761, Co-requisite NURS 6478, NURS 5911 (PNP) or NURS 6772, NURS 5921 (PAC)

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6456 - Advance Pediatric Clinical Skills (1 Credit)**

This course builds on the skills developed in the Advanced Assessment course & Advanced Pediatric Assessment Course to prepare the pediatric nurse practitioner to integrate clinical scenarios with hands-on skill performance with pediatric patients. This course is offered with a PASS/FAIL grade option only. Pre: NURS 6761, Pre/Co: NURS 6450

Grading Basis: Pass/Fail Only

Typically Offered: Spring.

**NURS 6478 - Primary Care of Children: Well Child Care (4 Credits)**

The first course in the PNP curriculum focuses on well child care including advanced assessment, health promotion, disease and disability prevention, and common developmental issues. Well child care is addressed within the context of patient, family, and inter-professional teams. Pre-requisites: NURS 6222, NURS 6243, NURS 6761; Co-requisite NURS 5911

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6488 - Pediatric Minor and Acute Illness (3 Credits)**

This course focuses on evidence-based approaches to diagnosing and managing minor acute illnesses from birth through adolescence. Developmental aspects of healthcare for children presenting with common biobehavioral/biophysical symptoms are addressed within the context of the patient, family, and inter-professional teams.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**NURS 6490 - Pediatric Primary Care Essentials (3 Credits)**

Students learn pediatric primary care with a focus on family centered approaches to well-child care and minor acute and chronic illness. Knowledge gained can be applied to the continuum of pediatric care across primary, urgent, specialty, and acute settings. Prerequisites: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5921

Grading Basis: Letter Grade

Typically Offered: Spring.



**NURS 6496 - Pediatric Chronic Illness and Disability (3 Credits)**

The third course in the PNP curriculum focuses on assessment, diagnosis and evidence-based management of children with disabilities and chronic illness. Care for children with disabilities and chronic illness is addressed within the context of patient, family, and inter-professional teams. Requisite: NURS 6761, NURS 6222, NURS 6243, NURS 6477, NURS 6487

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**NURS 6500 - Acute Care Pediatric Nurse Practitioner I (3 Credits)**

Content pertinent to the urgent, emergent, and critical care management of acute illness/traumatic injury and exacerbation of chronic illness in a systems approach. Topics include analgesia/sedation, fluid/electrolyte abnormalities, GI disorders/nutrition, cardiac and pulmonary conditions and infectious diseases. Post-Grad Certificate - certification as PNP or FNP. Coreq-NURS6756-08 minimum 1 credit. MS student prereqs-NURS 6010, NURS 6031, NURS 6222, NURS 6243, NURS 6761, NURS 6772, co-req-NURS 6755-C08

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6510 - Acute Care Pediatric Nurse Practitioner 2 (3 Credits)**

Content pertinent to the urgent, emergent, and critical care management of acute illness and the acute exacerbation of chronic illness presented in a systems approach. Systems include neurology, hematology/oncology, endocrine, metabolic, nephrology and genetics. Post-Grad Certificate - Completion of NURS 6500, minimum 2 credits NURS 6756-08. MS students pre-reqs - NURS 6761, NURS 6243; NURS 6222, NURS 6010, NURS 6031, NURS 6772. Co-req-NURS 6755-08.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6520 - Acute Care Pediatric Nurse Practitioner 3 (3 Credits)**

Content on the urgent, emergent, and critical care of acute illness/trauma and exacerbation of chronic illness in a systems approach. Systems include musculoskeletal disorders, traumatic injury, toxicology, mental health, ENT and Ophthalmology. Special populations: chronic pain, palliative/end-of-life care. Post-Grad Certificate - NURS 6500, minimum 2 credits NURS 6756-08. MS students pre-req - NURS 6761, NURS 6243, NURS 6222, NURS 6010. NURS 6031 and NURS 6772. Co-requisite NURS 6755-08.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6528 - FNP DM Physio & Psych Health I (3 Credits)**

This course applies an evidence-based, family-centered approach when managing behavioral and physical health in the primary care setting. Synthesis of differential diagnoses for acute and chronic conditions is emphasized. Strategies for the development of wellness goals and self-efficacy are provided. NURS 6640

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6529 - FNP DM Physio & Psych Health II (3 Credits)**

This course evaluates the effectiveness of an evidence-based, family-centered approach to behavioral and physical health. An emphasis is placed on the design of wellness goals and the creation of management plans. Solutions to common challenges in primary care are proposed. Requisite: NURS 6528, NURS 6640

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6549 - FNP Adv. Clinical Skills (1 Credit)**

Students will explore the framework used to make evidence-based clinical decisions in the physical and behavioral primary care of families. Confidence is built in the ability to perform procedures as well as gather, interpret, and evaluate laboratory and diagnostic data. NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6599 - Intro to AG-ACNP (1 Credit)**

Introduces students to basic skills needed to perform as an AG-ACNP within an acute care setting. Provides instruction on how to deliver adequate patient presentations as well as how to prioritize, understand, and report data into a broad differential diagnosis.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6600 - Adult Gerontology Acute Care Nurse Practitioner I (3 Credits)**

Builds on the concepts of advanced health assessment, diagnosis and management, and treatment of acute problems in adults. Emphasis placed on the specialty areas of urgent, emergent, and critical care. Patient care and systems oriented advanced practice roles are included.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6603 - Health Systems and Management (3 Credits)**

This course provides students an overview of the U.S. Healthcare System, its key components and their functional relationships. Students learn about the organization, management, and financing of the U.S. Healthcare System.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6610 - Adult Gerontology Acute Care Nurse Practitioner 2 (3 Credits)**

Builds on the concepts of advanced health assessment, diagnosis and management, and treatment of acute problems in health. Additional focus on leadership development within acute care settings and effecting change within an interdisciplinary, integrated health system. Prerequisite: NURS 6600

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6620 - Adult Gero Acute Care NP Diagnostics & Therapeutics (2 Credits)**

Introduces students to the principles of diagnostic and therapeutic modalities used in acute/critical care settings. Includes analysis of relevant laboratory data and interpretation of radiographs and ECG's. Provides instruction on acute technical skills including intubation and central line insertion. Prerequisite: NURS 6610

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6633 - Advanced Public Health Nursing (3 Credits)**

Course provides the learned with: foundations of advanced public health nursing practice; advanced knowledge of population health and care coordination; essentials of program planning, implementation, and evaluation; and community practicum experiences leading to capstone development and completion. Prereq: NURS 6010, NURS 6011.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6640 - FNP Hlth Promotion, Prevention, Screening (3 Credits)**

This class introduces students to primary care evidence-based research and practice guidelines important for physical and behavioral health promotion and protection. The family nurse practitioner role in family health and wellness will be emphasized.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6659 - Adv Assess, Neurobiology & Psychopharm Across Lifespan (3 Credits)**

Focus on integration of neurobiological and psychopharmacological theory and research to assessment, symptomatology and treatment of psychiatric disorders across the lifespan. Prerequisite: Psychotherapy, NURS6664, NURS6243, Principles of Evidence, NURS6761, NURS6222.

If DNP additional courses, NURS6303, Evaluate Evidence, Applying Evidence

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6661 - Diagnosis and Management/Adults PMHNP (3 Credits)**

Advanced knowledge of evidence-based psychiatric-mental health nursing including assessment, diagnosis, health promotion, management, and evaluation of adults with mental illnesses and addictions.

Emphasis on neurobiology, complex psychopharmacological and non-pharmacological treatments, and culturally-sensitive nursing interventions. Prereq: NURS 6660. Coreq: NURS 6756-6758, 3 cr hrs.

Grading Basis: Letter Grade

**NURS 6662 - Diagnosis and Management/Children and Older Adult PMHNP (3 Credits)**

Advanced psychiatric nursing assessment, diagnosis, health promotion, management, and evaluation of children, adolescents, and older adults. Emphasis on complex individual, family, group, and non-pharmacologic nursing interventions, neurobiology, psychopharmacological treatments, and developmentally appropriate, culturally-sensitive nursing interventions. Variable credits: Child (2); all populations (3) Prereq: NURS 6660; approval from Option Coordinator of FPMHNP Program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6664 - Integrated behavioral health care & common psychiatric (3 Credits)**

Overview of behavioral health assessment of common psychiatric disorders and medical conditions with psychiatric presentations across the lifespan. Focuses on integrated care settings, interdisciplinary communication, care coordination within a trauma-informed setting. Guidelines for telepsych and social media will be discussed. Prerequisite: NURS 6243, NURS 6222 or permission of instructor

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6665 - PsyTherapy, Behavioral Change & HP Lifespan (3 Credits)**

Theoretical foundational knowledge of individual, group, and family therapy, health promotion and disease prevention for the PMHNP across the lifespan. Focuses behavior change and use of Cognitive behavioral, dialectical, solution focused, play, and reminiscence therapy, motivational interviewing across the lifespan. Prerequisite: In the PMHNP option, or approval by course faculty

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6739 - Ob-Gyn Essentials for the FNP (3 Credits)**

NURS 6739 will provide an overview of normal anatomy and physiology, health prevention and common acute gynecology, pregnancy and postpartum problems commonly seen in the primary care of women over the lifespan. Requisite: NURS 6222, NURS 6761, NURS 6243, NURS 6818

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6740 - ADULT-GERONTOLOGY CNS WELLNESS TO ILLNESS (3 Credits)**

Focus is on knowledge acquisition and skill development for Adult-Gerontology Clinical Nurse Specialist. The course provides learning of concepts of wellness, health maintenance, aging, palliative care as a model for health, evidence-based practice, skill development, clinical decision-making and APN role.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6742 - Adult-Gerontology CNS Advanced Practice****Acute Care Nursing (3 Credits)**

This course builds CNS knowledge and skills managing the care of acutely ill patients across the continuum during acute illness episodes. CNS practice incorporating three spheres, healthcare systems, patients/families and nursing practice excellence are central to course content

Grading Basis: Letter Grade

**NURS 6744 - Advanced Concepts in Palliative Care (3 Credits)**

The course focuses on palliative care specialty knowledge, and skills for the advanced practice nurse. Course content includes: assessment, advance care planning, advocacy, approaching death, communication skills, ethical issues, palliative care in diverse populations and settings, and current best evidence. Prereq: NURS 6010, NURS 6031, NURS 6761, NURS 6858. Coreq: Enrollment in a minimum of 1 cr hr in NURS 6755 or NURS 6756, or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6746 - Adult-Gero CNS Complex patient management (3 Credits)**

Focuses is on management of patients with acute and chronic illness in adults by Clinical Nurse Specialist. Integration of advanced skill development, theory, evidence-based symptom, disease management, clinical decision making, leadership, system organizational strategies, professional issues, and APN role transition.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6747 - Practical Applications in Palliative Care Programming (3 Credits)**

An advanced course focusing on sustainable palliative care program development in acute, post-acute, and ambulatory settings including: leadership effectiveness, financial and reimbursement principles, quality monitoring and improvement, innovation, public policy, access to palliative care services, organizational integrity & compliance.

Prerequisite: NURS6744, NURS6745

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6752 - Advanced Public Health Nursing Practicum I (1-6 Credits)**

Course provides the learner with advanced public health nursing clinical/practicum experiences in community-based settings. Associated seminars of clinical experiences will compliment didactic course content.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

Typically Offered: Fall, Spring, Summer.

**NURS 6759 - Informatics Adv Practicum (3-6 Credits)**

This course allows students to integrate and apply informatics competencies in an advanced nursing practice role. The preceptored practicum and project require the student to engage in informatics specialist roles within a variety of health care settings. Prereq: Completion of a minimum of three informatics specialty courses.

Grading Basis: Letter Grade

Repeatable. Max Credits: 20.

**NURS 6761 - Advanced Assessment (3 Credits)**

Students develop advanced skills in interviewing, physical examination, critical thinking, diagnostic tool use, and documentation required of advanced practice nurses providing care for clients across the lifespan. Case study analyses are used to expose students to common health complaints seen. Prereq: NURS 6243 preferred.

Grading Basis: Letter Grade

**NURS 6782 - Advanced Public Health Nursing Practicum II (1-6 Credits)**

Course builds on Adv PHN Practicum I to give the student advanced public health nursing clinical/practicum experiences with more depth in Tier II and Tier III competencies, especially in public health leadership and management.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6785 - Complex Symptom Mgmt in Palliative Care (3 Credits)**

An advanced theory course addressing the human experience of pain and non-pain symptoms associated with chronic and/or terminal serious illness. The course emphasizes Caring Science as a foundational approach for meeting symptom management needs of the palliative care population. NURS 6744

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6790 - Systems and Leadership Theory (3 Credits)**

This course focuses on the contemporary theories as they apply to healthcare systems and the managerial role. The course includes critical analysis of organizational, leadership, change and evidence-based practice theories. Emphasis is placed on application of theory to organizational analysis.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6793 - Relational Communication (3 Credits)**

Study of theory, research, and praxis of relational communication with interpersonal, group, and organizational contexts. Relationship-building, effective communication and leadership competencies are emphasized for safety and quality improvement through reflection and self-awareness, shared decision-making, coaching, conflict management, and political navigation.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6794 - Decision Support and Data Management (3 Credits)**

This course focuses on decision making models and their application using diverse data sources for high quality and safe care delivery. Decision support tools used in various health settings will be explored.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6795 - i-LEAD Administrative Internship (3 Credits)**

The internship provides students the opportunity to apply and evaluate systems and leadership theories, concepts and skills in the work setting under the supervision of a preceptor. The course is designed as a capstone experience to integrate and apply competencies

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6796 - Executive Leadership and Organizational Systems (3 Credits)**

This course examines attributes and issues associated with high-level administrative roles in healthcare organizations. It explores facets of leadership and leadership development in teams and organizations and processes by which people affect change in a variety of roles and situation.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6800 - Leadership, Financial Management and Innovation (3 Credits)**

Systems and leadership theory plus introductory financial concepts knowledge scaffolds to application in construction of a business plan for innovative nursing program/practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6819 - AGPCNP Primary Hlth Care I: Hlth Promotion & Prevention (3 Credits)**

This course provides content on health promotion and health maintenance of adults in primary care. Evidence-based guidelines for health promotion and tools for assessment and management of the individual, family and community. Prerequisites: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5971

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6829 - Primary Care II: Diagnosis and Management I (3 Credits)**

This course covers diagnosis, management, and competent determinations of care related to acute and chronic health alterations in the adult/geriatric primary care patient. Pre-requisite: NURS 6243, NURS 6222, NURS 6761, NURS 6818. Co-requisite NURS 5972

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6836 - Special Topics (0.5-6 Credits)**

This course is a special topic selected each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 12.

**NURS 6839 - Primary Care III: Diagnosis and Management II (3 Credits)**

This course is a continuation of diagnosis, management, and competent determinations of care related to acute and chronic health alterations in the adult/geriatric primary care patient. Requisite: NURS 6222, NURS 6243, NURS 6761, NURS 5971, NURS 6829, NURS 6818, NURS 5971, NURS 5972, NURS 5973

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6849 - PC IV: DM III Care for Complex Older Adult (3 Credits)**

This course focuses on care of the older adult through examination of complex health alterations. Health optimization of the older adult; palliative and end of life care, social and political factors affecting this age group are also examined. Pre-requisites: NURS 6222, NURS 6243, NURS 6761, NURS 6839 Co-requisite: NURS 5973

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6850 - NMW Primary Care of Women (2 Credits)**

Facilitates development of critical thinking necessary for the application of midwifery management in primary care for women; routine screening and health promotion, diagnosis & management, and collaborative management or referral of acute minor illnesses and chronic disease management. Prerequisites: NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6859 - Advanced Professional Role (2 Credits)**

This course explores the professional aspects and challenges associated with advanced practice nursing including professional issues and transition to the advanced nursing role. Contemporary topics include role acquisition in intra- and interdisciplinary practice, theory/evidence based practice, and legal/ethical issues.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6882 - Foundational Clinical Skills Adv Pract NP (1 Credit)**

This course applies advanced practice competencies associated with procedural skills in a hands on format.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6940 - Candidate for Degree (1 Credit)**

Registration only if not enrolled in other coursework in the semester in which he/she takes MS comprehensive exams.

Grading Basis: Pass/Fail Only

Additional Information: Report as Full Time.

**NURS 6950 - Synthesis/Integration/Transition into FNP Practice (2 Credits)**

This course will synthesize and integrate learning from the FNP program and prepare the student for transition into clinical practice. Students will plan how to support the FNP role and analyze interprofessional leadership opportunities to improve health outcomes. Pre/Co-requisite: NURS 5934; Prerequisite: NURS 6529.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6973 - State of Science: Healthcare Systems (3 Credits)**

Course focuses on the state of the science of evidence-based practice and environment of health-care and its effect on organizational, staff, and patient outcomes. The manager's role in creating/enhancing the environment will be emphasized based upon research. Prerequisite: NURS 6790 Systems Theory

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**NURS 7001 - Diversity of Scientific Perspectives (1 Credit)**

Beginning exploration of focal emphasis areas biobehavioral science, caring science and healthcare systems in a seminar format. Students will be introduced to the three focal emphasis areas and explore applications to knowledge development in their area of substantive interest.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7101 - Metatheory in Nursing I (3 Credits)**

This course examines the nature of nursing as an academic discipline, emphasizing varying perspectives of nursing's phenomena of interest, history of knowledge development, interrelationships between philosophies of science and nursing knowledge, and methods of theory analysis and evaluation.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7102 - Metatheory in Nursing II (3 Credits)**

This course focuses on processes of knowledge development in nursing, including traditional and non-traditional methods. Application of a selected theory development method to a student-selected nursing phenomenon is required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7200 - Writing Discipline for Scientific Publishing (3 Credits)**

Concentrating on clear, logical thinking as the most important element in manuscript communication, students will develop the discipline of writing focusing on writing roadmaps, precision/concision of words and common writing pitfalls in the context of expectations for scientific publishing.

Prerequisite: Completion of first-year PhD coursework or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7220 - Role of the Scientist I (3 Credits)**

This seminar course is designed to promote beginning professional role formation as PhD students transition to the role of the scientist. Students will develop a research question and specific aims.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7221 - Role of the Scientist II (2 Credits)**

This seminar course builds upon Role of the Scientist I by emphasizing role development through scientific grant writing. Prerequisite: NURS 7220.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7350 - Research Practicum (3 Credits)**

Students gain hands-on research experience by leveraging various opportunities within the college, campus and other academic environments. This experience includes observing and contributing to research steps and team interaction. This will enrich students' understanding of research process and provide hands-on experience.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7440 - Measurement for Nursing Science (3 Credits)**

Course provides a knowledge base in the process of instrumentation to measure psychosocial and behavioral phenomena. Techniques to evaluate existing instruments will be followed by methods for designing and testing the psychometric properties of new instruments.

Grading Basis: Letter Grade

**NURS 7504 - Caring Science Seminar I: Introduction to Caring Science (1 Credit)**

This course focuses on the evolution of caring science research and other disciplines. in nursing with an emphasis on Dr. Jean Watson's perspective. How theoretical-scholarship in caring science and multiple theories of caring are used in research are critiqued and examined.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7506 - Diverse Theories of Care: Paradigms of Human Caring (3 Credits)**

This course explores caring science and unitary views of consciousness in relation to universal human experiences and vicissitudes of existence. Different theories of caring examine the diversity and converging directions of a unitary transformative view of evolved humans.

Grading Basis: Letter Grade

Typically Offered: Fall.



**NURS 7508 - CS as Transdisciplinary Domain for Health Science Educ (3 Credits)**

This course explores the placement of caring knowledge within a trans-disciplinary matrix for nursing science and related fields of health science and education. It examines diverse concepts of caring in the larger field of health science. Original expanded title: Caring Science as Transdisciplinary Domain for Health Science Education, Practice and Research

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7510 - Nursing Science Inquiry Methods (4 Credits)**

An introduction to qualitative and quantitative methods of inquiry to guide the selection of methods for knowledge development in nursing science. Emphasis on the integration of midrange theory, literature analysis and synthesis for development of researchable questions and methods selection. Prereq: Admission to the program and first semester required courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7511 - Philosophical Underpinnings Caring Science (3 Credits)**

This course focuses on the analysis of caring science from its philosophical traditions. Historical and contemporary philosophical scholarship will be critiqued and examined. NURS 7504, NURS 7519

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7519 - Exploring Caring Science Questions (1 Credit)**

This course focuses on the latest development and analysis of caring science research and its evolution. Caring Science questions and methodologies related to students' research questions are examined.

Prerequisite: NURS 7101, NURS 7201, NURS 7504

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7621 - Advanced Qualitative Research Design, Methods & Analysis I (3 Credits)**

A range of qualitative research approaches are critically analyzed exploring contemporary qualitative designs and underlying theoretical models. Students will develop a qualitative research proposal appropriate for student's doctoral research questions and consistent with IRB requirements. Prereq: Completion of required coursework for Year 1 and Summer Year 2.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7622 - Advanced Qualitative Research Design, Methods & Analysis II (3 Credits)**

This course provides students with opportunities to apply new skills and knowledge related to their interests, including critique and dissemination of qualitative reports. Prereq: Completion of required courses for Year 1 and Summer Year 2 and Fall Year 2.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7631 - Advanced Quantitative Research Design, Methods & Analysis I (3 Credits)**

In-depth study of principles foundational to quantitative research including causation, sources of error, measurement, and the focal unit, and internal and external validity; experimental and quasi-experimental designs; and methods of statistical analysis for these designs. Prereq: Completion of required courses for Year 1 and Summer semester of Year 2.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7632 - Advanced quantitative Research Design, Methods & Analysis II (3 Credits)**

In-depth study of principles foundational to quantitative research including causation, prediction, explanation, and power; descriptive and exploratory research designs; methods of statistical analysis for these designed; and meta-analysis. Prereq: Required courses for: Year 1, Summer Year 2 and Fall Year 2.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7720 - Health Care Systems I: Evaluating Health Care Delivery System (3 Credits)**

Focuses on descriptive/evaluation of health care delivery across the continuum of care and integration of nursing care with health care delivery. HCS middle-range theories for descriptive/evaluative research are examined. Advanced methods for research at the system level are addressed. Prereq: NURS 7801; NURS 7802NURS 7803, NURS 7101; NURS 7102; NURS 7201, NURS 7510

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7730 - Health Care Systems II: Changing Health Care Delivery Systems (3 Credits)**

Focuses on improving health care delivery across the continuum of care. Changing theories and theoretical grounding for system level interventions are analyzed. Application includes advanced methods/designs for assessing the effects of change. The information technology/care delivery interface is examined. Prereq: All first year and summer/fall second year required courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7740 - BBS I: Intrapersonal Determinants & Phenomena (3 Credits)**

This course focuses on the intrapersonal biobehavioral determinants that underlie health-related phenomena, including psychosocial, behavioral, and biological mechanisms and processes. Prereq: First year PhD required courses for the Biobehavioral Science focus.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7750 - BBS II: Interpersonal Phenomena & Determinants (3 Credits)**

This course focuses on the interpersonal phenomena that arise from interrelationships among psychosocial, behavioral, biological and environmental determinants of health states across the lifespan. Prereq: First year and second year summer PhD required courses for the Biobehavioral Science focus.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7760 - Interventions & Outcomes in Biobehavioral Research (3 Credits)**

Introduction to conceptualization, development, and testing of biobehavioral interventions; identification and measurement of biobehavioral outcomes. Attention is also given to the design of clinical trials to test biobehavioral interventions, questions of efficacy and effectiveness, and issues of implementation and fidelity. Prereq: Required courses for Year 1, summer Year 2, Fall Year 2.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7802 - HCS Seminar II: Developing Systems Questions (1 Credit)**

Development of key questions in the field of health care systems research will be discussed in seminar format. Students will develop research questions related to their own area of research interest. Prereq: Completion of required first semester courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7803 - Health Care Systems: State of the Science (3 Credits)**

Interrogation of extant HCS literature using integrative and systematic frameworks to review the state of the science in student's area of interest. Identification of state of the science and appropriate research methods to address the gaps in knowledge. Prereq: All required first year courses.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7822 - Developing Biobehavioral Research Problem & Questions (1 Credit)**

Development of key questions in the field of biobehavioral research will be discussed in seminar format. Students will develop a problem statement and research questions related to their own area of research interest. Prereq: Completion of first semester required courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7836 - Special Topics (1-4 Credits)**

This course is a special topic selected each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

**NURS 7856 - Independent Study (1-4 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

**NURS 7862 - Best Practices to Enhance Teaching and Learning (3 Credits)**

Exploration of best practices in evidence-based and theory-guided teaching and learning. Analysis of contemporary learning principles and learning styles. Implementation of a variety of high impact strategies for learner engagement across settings, with emphasis on selecting and using teaching technologies. Requisites: Graduate standing or permission of instructor

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 7863 - Immersion in Nursing Education Practicum (3 Credits)**

Implement best practices in teaching and learning, curriculum and course design and continuous improvement, learning assessment and evaluation methods with a faculty mentor. Experiences address individual learning needs relevant to the nurse educator role across teaching modalities and learning environments. Requisite: Graduate standing or permission of instructor. Previous teaching experience or coursework relevant to teaching and learning strategies, curriculum design and evaluation, and/or adult learning theory is recommended.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 7864 - Evolving Nursing Educ Sci and Nurse Educator Roles (3 Credits)**

Exploration of advances in nursing education science and impact of research on pedagogy, roles, and competencies necessary to prepare a well-qualified diverse nursing workforce across dynamic healthcare systems and environments. Emphasis is on the scholarship of teaching and professional development. Requisite: Graduate standing or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 7865 - Outcome-focused Curriculum and Program Evaluation (3 Credits)**

Exploration of curriculum design and course developments as foundations for achievement of desired learning and program outcomes. Emphasis is on the connection between design and evidence of performance to assess individual learning, course and program effectiveness and continuous quality improvement. Requisite: Graduate Standing or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 8000 - DNP Project Variable Hours Course (1-5 Credits)**

Students who need greater than 540 clinical hours toward DNP Project take this course. Faculty advisor provides oversight to student. Credit hours are variable depending on individual student needs. Students log DNP Project hours in InPlace. Prerequisite: NURS 6070, NURS 6009, NURS 6286, NURS 6109

Grading Basis: Letter Grade

Repeatable. Max Credits: 12.

Typically Offered: Spring.

**NURS 8020 - DNP Project Preparation (1 Credit)**

Doctor of nursing practice students begin to plan their projects by incorporating ethical and regulatory oversight considerations of practice, population, or system readiness for enhancement and relevant evidence and/or interventions related to the DNP project.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 8030 - DNP Project I (4 Credits)**

In a clinically focused experience, Doctor of Nursing Practice students work on scholarly projects which incorporate theoretical models, various strategies, and compliance with regulatory oversight. Evidence evaluation and feedback incorporation are highlighted. Pre-requisite: NURS 8020

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 8035 - DNP Seminar 1 (1 Credit)**

Students will develop a protocol proposal for their DNP project that will be reviewed for ethical and regulatory oversight. A guiding framework will be used to plan organizational change in a specific practice setting or system. Pre-requisite: NURS 8020, Co-requisite NURS 8030  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**NURS 8040 - DNP Project Course II (3 Credits)**

In a clinically focused experience, Doctor of Nursing Practice students will begin project implementation, data collection, data analysis, and dissemination of project findings. Emphasis is placed on theoretical models, DNP role advocacy, and leading interdisciplinary teams. Pre-req: NURS 6109, NURS 6009, NURS 6286, NURS 6070 NURS 8030, NURS 8035  
CO: NURS 8045  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**NURS 8045 - DNP Seminar 2 (1 Credit)**

Students will develop and implement small tests of change for their DNP project. Attention will be paid to integrating evaluation strategies into the students' specific practice setting or system. Pre: NURS 6109, NURS 6009, NURS 6286, NURS 6070, NURS 8020, NURS 8030, NURS 8035 CO: NURS 8040  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**NURS 8050 - DNP Project III (4 Credits)**

Doctor of Nursing Practice students will continue project implementation, conclude data collection and complete data analysis in this final course. Students will disseminate project findings by completing a scholarly paper and an oral presentation. An e-portfolio will also be completed. Requisite: NURS 8040, NURS 8045  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 8856 - Independent Study (DNP) (1-6 Credits)**

Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall, Spring, Summer.

**NURS 8990 - Dissertation (1-10 Credits)**

Student MUST register for section number listed for dissertation chairperson. Prereq: Completion of majority of doctoral course work.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 40.  
Additional Information: Report as Full Time.

## Resources

### Policies

- Student Handbooks (<https://nursing.cuanschutz.edu/student-life/student-handbooks/>)
- Emergency Preparedness (<https://www.cuanschutz.edu/police/emergency-management/anschultz/>)
- Title IX (<https://www.ucdenver.edu/offices/equity/university-policies-procedures/sexual-misconduct-intimate-partner-violence-stalking/>)

### Student Organizations

- CU Student Nurses Association (<https://nursing.cuanschutz.edu/student-life/clubs-and-organizations/cusna/>)
- College of Nursing Student Council (<https://nursing.cuanschutz.edu/student-life/clubs-and-organizations/nursing-student-council/>)

- CU Student Senate (<https://www.cuanschutz.edu/student/campus-life/senate/>)
- Sigma Theta Tau (<https://www.sigmanursing.org/>)
- Future Voices (<https://future-voices.webnode.com/>)

## Nursing (BS)

### Contact Info

Office location: Education II North, Room 3255  
Mailing address: 13120 East 19th Avenue, 3rd Floor  
Aurora, CO 80045  
Phone number: 303-724-1812  
Web Page: <https://nursing.cuanschutz.edu/>  
Email: [Nursing.admissions@ucdenver.edu](mailto:Nursing.admissions@ucdenver.edu)

### Overview: Multiple Pathways to Your Bachelor of Science Degree in Nursing

Earn the Bachelor of Science in Nursing (BSN) degree through the CU Nursing Traditional, Accelerated or RN-BSN pathway from one of the top ten nursing programs in the country. The University of Colorado College of Nursing has been ranked among the best nursing programs by U.S. News & World Report in 2017 and 2021.

The BSN program is led by world-renowned faculty who understand the challenges of earning a degree. That's why our programs and classes are offered in multiple pathways. From a Traditional pathway with the majority of classes in the traditional classroom setting to an accelerated pathway for those with bachelor's degrees in a non nursing field, to an online format for RNs seeking a BSN — we have something for everyone. Each pathway offers online courses taught by the same top-notch teachers, researchers and writers as our in-person courses. We know one of our pathways will work for you.

Our RN-BSN Pathways are fully online, and are designed for students who are working full-time in professional nursing settings. Even if you live outside of Colorado, you can be a part of CU Nursing through the cutting-edge, high-quality RN-BSN Pathway courses.

All of our BSN courses prepare the learner to practice as a generalist nurse at the baccalaureate level. Students will learn to manage patient care with compassion through the advocacy of evidence-based, relationship-centered, care. The student will learn the importance of safe, quality, efficient and effective interdisciplinary care to enhance and sustain health and healing. Students work together with other disciplines across the campus including pharmacy, dentistry, medicine, and public health.

### The University of Colorado College of Nursing offers five Bachelor of Science Pathways:

1. The Traditional Pathway: This is a full-time, 24-month option, designed for students who may or may not have earned a degree in the past. The Traditional Pathway follows a required class schedule that includes classroom, clinical simulation, and direct patient care clinical experiences. Students complete their pre-requisite courses at the community college or university setting, and subsequently apply through NursingCAS to the Traditional Nursing Pathway. Once accepted, students begin the Traditional 2-year program the following summer semester.
2. The Integrated Nursing Pathway (INP): The CU Nursing program partners with local community colleges (Community College of Aurora, Community College of Denver and red Rocks Community

College) to offer simultaneous application and admission to the local community college and CU Nursing Traditional BSN Program. This program is intended for Colorado residents who complete a majority of their prerequisite courses in the Colorado Community College system, and do not have a previous degree.

3. The University of Colorado Accelerated Nursing Pathway (UCAN): Designed for those who have earned a Bachelor's degree in a field other than nursing, students will complete a rigorous nursing program in 12 months. The UCAN student will complete the same number of program credits and clinical hours as the Traditional Pathway student.
4. The RN-BSN Pathway: This online RN to BSN pathway permits the licensed RNs to complete the BSN degree completely online. The program allows you to transfer the ADN credit so that you can complete the BSN in 16 months or less, while working full-time. Admission to this pathway takes place three times per year.
5. The RN-BSN Early Decision Pathway: The Early Decision Pathway is available for prospective students currently enrolled in an accredited Associate Degree of Nursing (ADN) program who have completed one semester of coursework that includes nursing courses.

#### Quick Guide to CU College of Nursing Bachelor's Programs

1. If you have an associate degree in nursing (ADN), check out our RN to BSN Pathway (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/online-rn-to-bs-in-nursing-program/>).
2. If you are currently enrolled in an accredited Associate's Degree of Nursing (ADN) program and are interested in advancing to the BSN after ADN completion, we have an RN-BSN early decision Pathway (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/rn-to-bs-early-decision/>).
3. If you're looking for a fast way to earn your bachelor's degree, check out UCAN which allows you to complete a BSN in 12 months (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/accelerated-nursing-bachelors-program-UCAN/#39;s-program>).
4. Looking to go the traditional route to earn a BSN? Check out our traditional BSN 24-month program and our Integrated Nursing Pathway. (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/traditional-nursing-bachelors-program/#39;s-program>)

Admission to the College of Nursing bachelor of science program is highly competitive. In order to keep the selection process fair, admission requirements are definitive and applied to each application in the same manner. Please keep in mind that applications are not reviewed until they are Verified by NursingCAS. Your application to the College of Nursing must be Verified by the application deadline (<https://nursing.cuanschutz.edu/admissions/deadlines/>) to be considered for admission.

Applications are submitted through Nursing's Centralized Application Service (NursingCAS (<https://nursingcas2021.liasoncas.com/applicant-ux/#/login>)).

For complete updated information related to applications to the College of Nursing TRADITIONAL PROGRAM, please visit: <https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/traditional-nursing-bachelors-admissions> (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/ucan-accelerated-bachelors-admissions>).

[nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/traditional-nursing-bachelors-admissions/](https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/traditional-nursing-bachelors-admissions/)).

For complete updated information related to applications to the College of Nursing UCAN (Accelerated) PROGRAM, please visit: <https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/ucan-accelerated-bachelors-admissions> (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/ucan-accelerated-bachelors-admissions/>).

or complete updated information related to applications to the College of Nursing RN-BS PROGRAM, please visit: <https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/online-rn-to-bs-in-nursing-admissions> (<https://nursing.cuanschutz.edu/academics/undergraduate-programs/bachelors-program/online-rn-to-bs-in-nursing-admissions/>).

## Baccalaureate (BS) Nursing Programs: Traditional Nursing Pathway

The Traditional Pathway is a full-time, 24-month Bachelor of Science option, designed for students who may or may not have earned a degree in the past. This program includes class room, clinical simulation, and clinical practice as part of the curriculum. Beginning with the summer 2019 cohort, the Traditional Pathway program will be primarily offered at the Anschutz Medical Campus in Aurora. However, Traditional students may be required to attend some classes or labs at the CU South Denver location in Lone Tree.

## University of Colorado Accelerated Nursing (UCAN) Pathway

The accelerated Bachelor of Science in nursing is a full-time, 12-month program option, which requires students have earned a previous bachelor's degree by the semester or quarter prior to beginning the nursing program. The degree can be in a health-related or non-health related field of study. Beginning with the spring 2020 cohort, the UCAN program will be primarily offered at the CU South Denver location in Lone Tree, CO. However, UCAN students may be required to attend some classes or labs on the Anschutz Medical Campus in Aurora.

## RN-to-BS Pathway

Open the door to greater career options within the nursing field by completing a Bachelor of Science degree in nursing. The University of Colorado, College of Nursing Online RN to BS in Nursing program is completely online, allowing you to seek your BS degree, balance your life, and work at the same time. The availability of online courses supports the unique need for flexibility and access to adult learners who want to complete their bachelor of science degree while working. Educational technology, such as web-based courses, help to accommodate work schedules and other life commitments for our students.

- Apply if you are a licensed RN. Applications are not limited to Colorado residents.
- Transfer most previously completed prerequisite coursework from a regionally accredited institution.
- Complete the program in four semesters (balanced to work with tuition reimbursements).
- Enjoy the accessibility of online orientation and education.
- Join a cohort, beginning each fall and spring, for progression and connection within a group.



- Benefit from practicum experiences designed to meet your personal goals.
- Focus on an individual area of interest (create a project meaningful and useful to you and your organization).
- Take advantage of earning your BS in nursing from the CU College of Nursing.

Traditional Nursing Pathway

Summer Course	Title	Hours
Year 1		
Summer		
NURS 3023	Patient-Centered Health Assessment <sup>All Term</sup>	3
NURS 3140	Pathophysiology for Nurses <sup>All Term</sup>	3
	Hours	6
	Total Hours	6

Fall Course	Title	Hours
Year 1		
Fall		
NURS 3034	Foundations of Nursing Practice <sup>Block I</sup>	4
NURS 3150	Pharmacology for Nurses <sup>All Term</sup>	3
NURS 3617	Medical-Surgical Nursing Practice I <sup>Block II</sup>	6
	Hours	13
	Total Hours	13

Spring Course	Title	Hours
Year 1		
Spring		
NURS 3567	Mental Health Nursing Practice across the Lifespan <sup>Block I</sup>	5
NURS 4064	Interprofessional Collaborative Practice <sup>Block I</sup>	1
NURS 4617	Nursing Care of the Adult Patient with Complex Care Needs <sup>Block II</sup>	7
NURS 3267	Health Promotion <sup>Block II</sup>	2
	Hours	15
	Total Hours	15

Year 1 total credit hours:

Didactic Hours: 25.65  
Clinical Hours: 12.35  
**Total Hours: 38**

Course	Title	Hours
Year 2		
Summer		
NURS 3080	Nursing Research and Evidence-Based Practice <sup>All Term</sup>	3
NURS 3667	Nursing Care of the Older Adult <sup>All Term</sup>	2

NURS 3880	Nursing Role and Practice <sup>All Term</sup>	2
	Hours	7
	Total Hours	7

Course	Title	Hours
Year 2		
Fall		
NURS 3447	Nursing Care of Children and Families <sup>Block I</sup>	5
NURS 4074	Inter-professional Healthcare Ethics & Health Equity <sup>Block I</sup>	1
NURS 3337	Nursing Care of Childbearing Families <sup>Block II</sup>	5
	Hours	11
	Total Hours	11

Course	Title	Hours
Year 2		
Spring		
NURS 4917	Immersion in Clinical Nursing <sup>Block I</sup>	8
NURS 4777	Community & Population Focused Nursing <sup>Block II</sup>	5.5
	Hours	13.5
	Total Hours	13.5

Year 2 Total Credit Hours:

Didactic Hours: 14  
Clinical Hours: 13.5  
**Total Hours: 27.5**

University of Colorado Accelerated Nursing (UCAN) Pathway

Spring		
Course	Title	Hours
Year 1		
Spring		
NURS 3023	Patient-Centered Health Assessment	3
NURS 3034	Foundations of Nursing Practice	4
NURS 3140	Pathophysiology for Nurses	3
NURS 3150	Pharmacology for Nurses	3
NURS 3267	Health Promotion	2
NURS 3617	Medical-Surgical Nursing Practice I	6
NURS 3667	Nursing Care of the Older Adult	2
	Hours	23
	Total Hours	23

Summer		
Course	Title	Hours
Year 1		
Summer		
NURS 3337	Nursing Care of Childbearing Families	5
NURS 3447	Nursing Care of Children and Families	5
NURS 3567	Mental Health Nursing Practice across the Lifespan	5

NURS 3080	Nursing Research and Evidence-Based Practice	3
<b>Hours</b>		<b>18</b>
<b>Total Hours</b>		<b>18</b>

**FALL**

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
NURS 4080	Professional Nursing: Transition into the Role	4
NURS 4617	Nursing Care of the Adult Patient with Complex Care Needs	7
NURS 4777	Community & Population Focused Nursing	5.5
NURS 4917	Immersion in Clinical Nursing	8
<b>Hours</b>		<b>24.5</b>
<b>Total Hours</b>		<b>24.5</b>

**TOTAL CREDIT HOURS:**

Didactic Hours: 39.65

Clinical Hours: 25.85

**Total Hours: 65.5****RN-to-BS Pathway****Year 1**

Code	Title	Hours
NURS 4824	Professional Nursing Role Development - RN	4
NURS 4850	Introduction to Health Care Informatics - RN	3
NURS 4800	Evidenced-Based Nursing Practice & Research for the RN	4
NURS 4860	Quality, Safety, & Innovative Nursing Practice-RN	4
NURS 4877	Population-Based Nursing - RN	6
<b>Total Hours</b>		<b>21</b>

**Year 2**

Code	Title	Hours
NURS 4887	Nursing Leadership in Complex Organizations I	4
NURS 4897	Nursing Leadership in Complex Organizations II	5
<b>Total Hours</b>		<b>9</b>

**TOTAL CREDIT HOURS:**

Didactic Hours: 29

Clinical Hours: 1

**Total Hours: 30****BS Program Outcomes**

- Display novice/professional nursing leadership qualities to promote quality and safe care.
- Engage in effective communication and collaboration in intra-and inter-disciplinary teams across a variety of contexts.
- Provide socially just, ethical, and inclusive care to diverse populations across the continuum of care.
- Apply principles of health care informatics as a meaningful user of health information systems and technology.
- Reference relevant theoretical frameworks to improve patient and population health outcomes across a range of settings.

- Integrate evidence-based practice into patient-centered care using the nursing process across a range of settings.
- Articulate how policy, advocacy, finance, and regulatory environments influence health care delivery.

**Nursing - Master of Science (MS)****Contact Info**

Office location: Education II North, Room 3255

Mailing address: 13120 East 19th Avenue, 3rd Floor

Aurora, CO 80045

Phone number: 303-724-1812

Web Page: <https://nursing.cuanschutz.edu/>Email: [nursing.admissions@ucdenver.edu](mailto:nursing.admissions@ucdenver.edu)**Overview: CU Nursing's Master of Science Degree is Tops**

Ranked among the top ten graduate programs nationally, according to U.S. News & World Report (<https://news.cuanschutz.edu/news-stories/college-nursing-program-ranked-top-10-u-s-news-world-report/>), CU Nursing's online master's degree program was named 17th best out of more than 200 programs nationwide in 2021. Our MSN online administration and leadership program (iLEAD) earned the 14th best spot out of 61 programs. We are recognized because of our exceptional faculty, administrators, students and quality innovative programs. In fact, CU Nursing has led the way for nursing education and has the distinction of being the birthplace of the Nurse Practitioner program. Our faculty excel at the top of their fields, and don't just teach. They also have clinical practices and see patients.

Our Master of Science in nursing program is designed to prepare nurses for career paths for future leaders in direct and indirect care roles in nursing. Our graduates are prepared to formulate clinical, administrative or policy decisions to promote health with clients experiencing wellness, acute or chronic illness and to develop, manage and evaluate the care within communities and health care systems.

A distinct benefit of our program is that we are part of a major medical campus that includes three hospitals – two of which are nationally ranked – the University of Colorado Health Hospital, Children's Hospital Colorado and the Veterans Administration. In addition, the College has its own nurse-run and led clinics that allow for our students to gain on-the-job training.

The CU College of Nursing Master of Science (MSN) degree will help you advance your career and increase your earning potential. You'll build valuable clinical skills while completing core classes and specialized coursework.

**Our 12 Specialty Tracks:**

- Adult-Gerontology (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/>)
  - Adult-Gerontology Acute Care Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/adult-gerontology-acute-care-nurse-practitioner/>)
  - Adult-Gerontology Primary Care Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/adult-gerontology-primary-care-nurse-practitioner/>)

- Clinical Nurse Specialist (CNS) Adult-Gerontology (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/clinical-nurse-specialist-adult-gerontology/>)
- Family Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/family-nurse-practitioner/>)
- Health Care Informatics (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/health-care-informatics/>)
- i-LEAD Nursing Leadership and Health Care Systems (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/i-lead-nursing-leadership-and-health-systems/>)
- Nurse-Midwifery (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/nurse-midwifery/>)
- Women's Health Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/womens-health-nurse-practitioner/>)
- Pediatric Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>)
  - Pediatric Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>) Acute Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>)
  - Pediatric Nurse Practitioner Primary Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/primary-care-pediatric-nurse-practitioner/>)
- Psychiatric Mental Health Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/psychiatric-mental-health-nurse-practitioner/>)
- Veteran and Military Health Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/veteran-and-military-health-care/>)

Graduates of the Advanced Practice Registered Nurse (APRN) tracks in the Master's Program (this includes all nurse practitioner, nurse-midwifery, and CNS tracks) are eligible to apply for national certification by examination. **APRN** certification is required for licensure in each state, including Colorado, and both national certification and state licensure is required for practice.

Learn more about the requirements for APRN licensure by visiting the Colorado Board of Nursing APRN application forms page <https://dpo.colorado.gov/Nursing/APNApplications> (<https://dpo.colorado.gov/Nursing/APNApplications/>). **There are certification options for other Master's Program tracks; however, certification is not required for practice.**

For a full list of MS admissions requirements, please visit: <https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/masters-program-admissions> (<https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/masters-program-admissions/>).

Applications are submitted through Nursing's Centralized Application Service (NursingCAS) (<https://nursingcas2021.liaisoncas.com/applicant-ux/#/login>).

## Choose one of our specialties:

Students select from 12 different specialties, comprised of direct patient care and indirect patient care areas of study. Past coursework to be applied toward the degree will be evaluated on a case-by-case basis. The specific courses required for each specialty option are included in the plans of study tab. Graduates of specialty tracks are eligible to apply for national certification by examination. Once you pass the certification examination, nurse practitioners, nurse midwives and CNS specialties may apply for licensure in all 50 states, including Colorado where licensure is granted as an Advanced Practice Registered Nurse (APRN) and is required for practice. (Learn more at the Colorado Board of Nursing APRN (<https://dpo.colorado.gov/Nursing/APNApplications/>).

### Direct Patient Care Specialties

- Adult-Gerontology (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/>)
  - Adult-Gerontology Acute Care Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/adult-gerontology-acute-care-nurse-practitioner/>) This specialty prepares nurses to provide care for adult and older patients with acute, critical and complex chronic illnesses. Graduates will be prepared to formulate clinical, administrative and policy decisions to care for the very sickest elderly patients and provide acute care services. Students will also learn to develop, manage and evaluate the care within hospitals and healthcare systems.
  - Adult-Gerontology Primary Care Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/adult-gerontology-primary-care-nurse-practitioner/>) As an AGPCNP, you'll work closely with patients ranging from teenagers to older and disabled adults through the end of life, maximizing their ability to stay active, healthy and strong. Our program prepares advanced practicing nurses to deliver high-quality care and transform lives. Specifically, you'll learn to diagnose and manage acute and chronic health problems, enhance your leadership and clinical decision-making skills and promote health and disease prevention.
  - Clinical Nurse Specialist (CNS) Adult-Gerontology (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/clinical-nurse-specialist-adult-gerontology/>) You can be an advocate for our most vulnerable population when you become an Adult-Gerontology Clinical Nurse Specialist (AGCNS) at CU Nursing. Our specialists care for patients from wellness through acute care, specifically focusing on acutely and critically ill patients, medical-surgical patients and elderly patients, along with patients requiring palliative care services (chronic illness management and end-of-life care). The AG CNS is involved in all levels of healthcare from long-term care to acute-care hospitals to home care.
- Family Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/family-nurse-practitioner/>) Our FNP specialty track will give you the clinical skills and education to treat physiologic and psychologic health, and prevent, assess and manage common, acute and chronic

illnesses. Having specialized education and clinical training in family care, you will be able to provide primary care services for infants to seniors. Practitioners also conduct wellness checks, administer treatments, screen for diseases and order tests to improve patients' overall health and well-being.

- Nurse-Midwifery (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/nurse-midwifery/>) Do you have a passion for childbirth and counseling women before conception, during pregnancy, birth and post-partum? CU Nursing's Nurse-Midwifery track is the specialty area for you! Because we run and operate our own Midwifery clinics, our students have a distinct advantage over other programs specializing in midwifery. In addition to attending births, our midwives perform annual exams, counsel families and write prescriptions.
- Pediatric Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/>)
  - Pediatric Nurse Practitioner Acute Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>) This specialty prepares graduates to care for children with complex acute, critical and chronic illness from birth to young adulthood in critical care units, emergency departments, inpatient units and ambulatory-specialty based clinics. Most of the clinical placements happen right on campus at Children's Hospital Colorado, a nationally ranked Top 10 Academic Pediatric Tertiary Care Facility.
  - Pediatric Nurse Practitioner Primary Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/primary-care-pediatric-nurse-practitioner/>) Make a difference in a child's life. Help maximize children's health and prevent disease from birth through their young adult years from one of the best programs in the country. U.S. News & World Report ranked our program as #8 in Top Nursing Programs in 2017. In this specialty, you will learn about well child-care and prevention management of common pediatric acute and chronic medical diseases and illnesses. The practitioners are involved in health promotion, screening, and primary prevention education.
- Psychiatric Mental Health Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/psychiatric-mental-health-nurse-practitioner/>) PMHNPs assess, diagnose and treat people with psychiatric disorders and illnesses such as mood disorders, substance abuse, anxiety and depression. The nurses can also provide therapy and prescribe medications for patients who have mental health disorders and drug and alcohol abuse problems. At CU Nursing, we emphasize holistic care, integrated mental health, cultural sensitivity and substance treatment to prevent and treat psychiatric conditions. Coursework includes psychotherapy, neurobiology, and psychopharmacology content for patients during their lifetime.
- Women's Health Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/womens-health-nurse-practitioner/>) Focus on the care of women throughout their lives as a Women's Health Nurse Practitioner (WHNP). Learn about conditions specific to women to improve their health, prevent disease and make smart lifestyle choices. WHNPs provide comprehensive care focusing on reproductive, obstetric and gynecological health. While pursuing your MS in this specialty, you'll work in private practice settings, learning from the best of the best where you will learn about the comprehensive health needs of

women: gynecological, prenatal, post-partum care, common minor and acute health problems, as well as influences that affect women's lives. The WHNP program is based on in-depth knowledge of nursing and scientific theory, physiology and pathophysiology, research utilization, and clinical decision-making.

### Indirect Patient Care Specialties

- Health Care Informatics (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/health-care-informatics/>) Looking for an exciting career that combines your clinical expertise with your passion for technology? The field of informatics provides opportunities for health care professionals to become leaders in the forefront of health care transformation through the use of provider and patient care technologies. Our online programs prepare you to plan, select, design and implement emerging technologies that advance consumer engagement, support clinical decision making, promote safety and drive quality care.
- i-LEAD Nursing Leadership and Health Care Systems (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/i-lead-nursing-leadership-and-health-systems/>) So, you're on track to be a leader in your organization, but you need additional skills in order to do so. iLEAD provides nurses who are interested in advancing their careers with essential competencies to become effective leaders and managers in a variety of health care settings. In this specialty, you'll learn to implement evidence-based practices and data-driven processes to provide high-quality care with best outcomes. You'll be equipped to manage others across a continuum of primary care, acute care, long-term care, school nursing, correctional facilities, home care and care coordination. Knowledge gained in cultural competence, informatics and evidence-based practice will provide educated leaders with the ability to excel in today's complex and changing health care system.
- Veteran and Military Health Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/veteran-and-military-health-care/>) Featured in US News & World Report as part of a constellation of initiatives to serve our veteran population, this emerging health care specialty is first-of-its-kind in the nation. Designed for working nurses who are currently novice to expert leaders and are affiliated with the military and/or veteran community, this specialty prepares you to be leaders, innovators, care coordinators, and change agents in caring for veterans and service members. This innovative and focused curriculum is designed to meet the needs of the individual learner and allows students to rapidly apply knowledge in their own practice settings.

## Adult Gerontology Programs

### Adult Gerontology Acute Nurse Practitioner - MS

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3 Didactic Credits</sup>	3
NURS 6286	Foundations Informatics <sup>3 Didactic Credits</sup>	3
NURS 6222	Adv Pharm & Therapeutics <sup>3 Didactic Credits</sup>	3
NURS 6070	Policy and Politics of Health <sup>3 Didactic Credits</sup>	3
NURS 6761	Advanced Assessment <sup>3 Didactic Credits</sup>	3
NURS 6859	Advanced Professional Role <sup>2 Didactic Credits</sup>	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3 Didactic Credits</sup>	3
NURS 6019	Wounds of War: Military & Veteran Disability Evals <sup>3 Didactic Credits</sup>	3



NURS 6599	Intro to AG-ACNP <sup>1</sup> Didactic Credit	1
NURS 5981	AGACNP Practicum I <sup>3</sup> Clinical Credits; 135 Clinical Hours	3
NURS 6600	Adult Gerontology Acute Care Nurse Practitioner I <sup>3</sup> Didactic Credits	3
NURS 5982	AGACNP Practicum II <sup>3</sup> Clinical Credits; 135 Clinical Hours	3
NURS 6620	Adult Gero Acute Care NP Diagnostics & Therapeutics <sup>2</sup> Didactic Credits	2
NURS 5983	AGACNP Practicum III <sup>4</sup> Clinical Credits; 180 Clinical Hours	4
NURS 6610	Adult Gerontology Acute Care Nurse Practitioner 2 <sup>3</sup> Didactic Credits	3
NURS 5984	AGACNP Practicum IV <sup>4</sup> Clinical Credits; 180 Clinical Hours	4
NURS 6849	PC IV: DM III Care for Complex Older Adult <sup>3</sup> Didactic Credits	3
<b>Total Hours</b>		<b>49</b>

**Total Didactic Credits: 35****Total Clinical Credits: 14****Total Clinical Hours: 630****Adult Gerontology Primary Care Nurse Practitioner - MS**

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 5971	AGPCNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6819	AGPCNP Primary Hlth Care I: Hlth Promotion & Prevention <sup>3</sup> Didactic credits	3
NURS 5972	AGPCNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6882	Foundational Clinical Skills Adv Pract NP <sup>1</sup> Didactic credits	1
NURS 6829	Primary Care II: Diagnosis and Management I <sup>3</sup> Didactic credits	3
NURS 5973	AGPCNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6839	Primary Care III: Diagnosis and Management II <sup>3</sup> Didactic credits	3
NURS 5974	AGPCNP Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6849	PC IV: DM III Care for Complex Older Adult <sup>3</sup> Didactic credits	3
<b>Total Hours</b>		<b>48</b>

**Total Didactic Credits: 36****Total Clinical Credits: 12****Total Clinical Hours: 540****Adult Gerontology Clinical Nurse Specialist - MS**

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic Credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic Credits	3

NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic Credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic Credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic Credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic Credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic Credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic Credits	3
NURS 5901	AG CNS Advanced Practicum I <sup>3</sup> Clinical Credits; 135 Clinical Hours	1-3
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic Credits	3
NURS 5902	AG CNS Advanced Practicum II <sup>3</sup> Clinical Credits; 135 Clinical Hours	1-3
NURS 6740	ADULT-GERONTOLOGY CNS WELLNESS TO ILLNESS <sup>3</sup> Didactic Credits	3
NURS 5903	AG CNS Advanced Practicum III <sup>3</sup> Clinical Credits; 135 Clinical Hours	1-3
NURS 6742	Adult-GerontologyCNS AdvancedPractice AcuteCareNursing <sup>3</sup> Didactic Credits	3
NURS 5904	AG CNS Advanced Practicum IV <sup>3</sup> Clinical Credits; 135 Clinical Hours	1-3
NURS 6746	Adult-Gero CNS Complex patient management <sup>3</sup> Didactic Credits	3
<b>Total Hours</b>		<b>39-47</b>

**Total Didactic Credits: 35****Total Clinical Credits: 12****Total Clinical Hours: 540****Family Nurse Practitioner - MS**

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic Credits	3
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic Credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic Credits	2
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic Credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic Credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic Credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic Credits	3
NURS 6640	FNP Hlth Promotion, Prevention, Screening <sup>3</sup> Didactic Credits	3
NURS 6434	FNP Care of the Pediatric Patient <sup>3</sup> Didactic Credits	3
NURS 6739	Ob-Gyn Essentials for the FNP <sup>3</sup> Didactic Credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic Credits	3
NURS 5931	FNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6882	Foundational Clinical Skills Adv Pract NP <sup>1</sup> Didactic Credits	1
NURS 6549	FNP Adv. Clinical Skills <sup>1</sup> Didactic Credits	1
NURS 5932	FNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6528	FNP DM Physio & Psych Health I <sup>3</sup> Didactic Credits	3
NURS 5933	FNP Practicum III <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6529	FNP DM Physio & Pysch Health II <sup>3</sup> Didactic Credits	3
NURS 5934	FNP Practicum IV <sup>4</sup> Clinical credits, 180 Clinical hours	4

NURS 6950	Synthesis/Integration/Transition into FNP Practice 2 Didactic Credits	2
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**Total Didactic Credits: 42****Total Clinical Credits: 14****Total Clinical Hours: 630**

## Health Care Informatics - MS

Code	Title	Hours
NURS 6009	Theory Foundation for Advanced Nursing	3
NURS 6070	Policy and Politics of Health	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence	3
NURS 6286	Foundations Informatics	3
NURS 6794	Decision Support and Data Management	3
NURS 6274	Semantic Representation	3
NURS 6289	Information Systems Life Cycle	4
NURS 6759	Informatics Adv Practicum	3-6
NURS 6284	Digital Tools for Connected Health	3
NURS 6285	HCI Design Principles	3
NURS 6279	Knowledge Management	3
NURS 6293	Database Mgmt Systems	3
<b>Total Hours</b>		<b>37-40</b>

**Total Credits: 40**

## i-LEAD Nursing Leadership and Health Care Systems - MS

Code	Title	Hours
NURS 6009	Theory Foundation for Advanced Nursing <sup>3 Clinical credits</sup>	3
NURS 6286	Foundations Informatics <sup>3 Clinical credits</sup>	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3 Clinical credits</sup>	3
NURS 6793	Relational Communication <sup>3 Clinical credits</sup>	3
NURS 6070	Policy and Politics of Health <sup>3 Clinical credits</sup>	3
NURS 6790	Systems and Leadership Theory <sup>3 Clinical credits</sup>	3
NURS 6794	Decision Support and Data Management <sup>3 Clinical credits</sup>	3
NURS 6973	State of Science: Healthcare Systems <sup>3 Clinical credits</sup>	3
NURS 6795	i-LEAD Administrative Internship <sup>3 Clinical Credits</sup>	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3 Clinical credits</sup>	3
<b>Total Hours</b>		<b>30</b>

**Total Didactic Credits: 27****Total Clinical Credits: 3**

## Nurse-Midwifery - MS

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3 Didactic credits</sup>	3
NURS 6377	Foundations of Midwifery Care <sup>2 Didactic credits</sup>	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3 Didactic credits</sup>	3
NURS 6222	Adv Pharm & Therapeutics <sup>3 Didactic credits</sup>	3

NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3 Didactic credits</sup>	3
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NURS 6070	Policy and Politics of Health <sup>3 Didactic credits</sup>	3
NURS 6761	Advanced Assessment <sup>3 Didactic credits</sup>	3
NURS 6859	Advanced Professional Role <sup>2 Didactic credits</sup>	2
NURS 6286	Foundations Informatics <sup>3 Didactic credits</sup>	3
NURS 6376	Reproductive Physiology <sup>3 Didactic credits</sup>	3
NURS 6344	NMW Gynecologic Care <sup>3 Didactic credits</sup>	3
NURS 5941	NMW Advanced Practicum I <sup>4 Clinical credits, 180 Clinical hours</sup>	2-4
NURS 6378	Care of the Childbearing Family I <sup>3 Didactic credits</sup>	3
NURS 6850	NMW Primary Care of Women <sup>2 Didactic credits</sup>	2
NURS 6374	NMW/WHNP Adv Clinical Skills - Outpatient <sup>1 Clinical credit</sup>	1
NURS 5942	NMW Advanced Practicum II <sup>4 Clinical credits, 180 Clinical hours</sup>	4
NURS 6379	Care of the Childbearing Family II <sup>4 Didactic credits</sup>	4
NURS 6375	NMW Advanced Clinical Skills - Inpatient <sup>1 Clinical credit</sup>	1
NURS 5943	NMW Advanced Practicum III: Integration <sup>8 Clinical credits, 360 Clinical hours</sup>	8

**Total Hours 56-58****Total Didactic Credits: 40****Total Clinical Credits: 18****Total Clinical Hours: 720**

## Women's Health Nurse Practitioner - MS

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3 Didactic credits</sup>	3
NURS 6286	Foundations Informatics <sup>3 Didactic credits</sup>	3
NURS 6009	Theory Foundation for Advanced Nursing <sup>3 Didactic credits</sup>	3
NURS 6222	Adv Pharm & Therapeutics <sup>3 Didactic credits</sup>	3
NURS 6070	Policy and Politics of Health <sup>3 Didactic credits</sup>	3
NURS 6761	Advanced Assessment <sup>3 Didactic credits</sup>	3
NURS 6859	Advanced Professional Role <sup>2 Didactic credits</sup>	2
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3 Didactic credits</sup>	3
NURS 6376	Reproductive Physiology <sup>3 Didactic credits</sup>	3
NURS 6344	NMW Gynecologic Care <sup>3 Didactic credits</sup>	3
NURS 5961	WHNP Advanced Practicum I <sup>3 Clinical credits, 135 Clinical hours</sup>	3
NURS 6374	NMW/WHNP Adv Clinical Skills - Outpatient <sup>1 Clinical credit</sup>	1
NURS 6378	Care of the Childbearing Family I <sup>3 Didactic credits</sup>	3
NURS 6850	NMW Primary Care of Women <sup>2 Didactic credits</sup>	2
NURS 5962	WHNP Advanced Practicum II <sup>3 Clinical credits, 135 Clinical hours</sup>	4
NURS 5963	WHNP Advanced Practicum III <sup>4 Clinical credits, 180 Clinical hours</sup>	3
NURS 5964	WHNP Advanced Practicum IV <sup>4 Clinical credits, 180 Clinical hours</sup>	4
<b>Total Hours</b>		<b>49</b>

**Total Didactic Credits: 34**  
**Total Clinical Credits: 15**  
**Total Clinical Hours: 630**

## Pediatric Nurse Practitioner Acute Care - MS

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic Credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic Credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic Credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic Credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic Credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic Credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic Credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic Credits	3
NURS 5921	AC-PNP Practicum I <sup>2</sup> Clinical Credits 90 Clinical hours	2
NURS 6490	Pediatric Primary Care Essentials <sup>3</sup> Didactic Credits	3
NURS 6450	Advanced Pediatric Physical Assessment <sup>1</sup> Didactic Credit	1
NURS 5922	AC PNP Advanced Practicum II <sup>2</sup> Clinical Credits 90 Clinical hours	2
NURS 6456	Advance Pediatric Clinical Skills <sup>1</sup> Didactic Credit	1
NURS 5923	AC PNP Advanced Practicum III <sup>3</sup> Clinical Credits 135 Clinical hours	3
NURS 6500	Acute Care Pediatric Nurse Practitioner I <sup>3</sup> Didactic Credits	3
NURS 5924	AC-PNP Practicum IV <sup>3</sup> Clinical Credits 135 Clinical hours	3
NURS 6510	Acute Care Pediatric Nurse Practitioner 2 <sup>3</sup> Didactic Credits	3
NURS 5925	AC PNP Advanced Practicum V <sup>3</sup> Clinical Credits 135 Clinical hours	3
NURS 6520	Acute Care Pediatric Nurse Practitioner 3 <sup>3</sup> Didactic Credits	3
<b>Total Hours</b>		<b>50</b>

**Total Didactic Credits: 37**  
**Total Clinical Credits: 13**  
**Total Clinical Hours: 585**

## Pediatric Nurse Practitioner Primary Care - MS

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 5911	PNP Advanced Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3

NURS 6450	Advanced Pediatric Physical Assessment <sup>1</sup> Didactic credit	1
NURS 6478	Primary Care of Children: Well Child Care <sup>4</sup> Didactic credits	4
NURS 5912	PNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6456	Advance Pediatric Clinical Skills <sup>1</sup> Didactic credit	1
NURS 5913	PNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6488	Pediatric Minor and Acute Illness <sup>3</sup> Didactic credits	3
NURS 5914	PNP Advanced Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6496	Pediatric Chronic Illness and Disability <sup>3</sup> Didactic credits	3
<b>Total Hours</b>		<b>47</b>

**Total Didactic Credits: 35**  
**Total Clinical Credits: 12**  
**Total Clinical Hours: 540**

## Psychiatric Mental Health Nurse Practitioner - MS

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6664	Integrated behavioral health care & common psychiatry <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6665	PsyTherapy, Behavioral Change & HP Lifespan <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6659	Adv Assess, Neurobiology & Psychopharm Across Lifespan <sup>3</sup> Didactic credits	3
NURS 5991	PMHNP Advanced Practicum I <sup>2</sup> Clinical credits, 90 Clinical hours	2
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6661	Diagnosis and Management/Adults PMHNP <sup>3</sup> Didactic credits	3
NURS 5992	PMHNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6662	Diagnosis and Management/Children and Older Adult PMHNP <sup>3</sup> Didactic credits	3
NURS 5993	PMHNP Advanced Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 5994	PMHNP Advanced Practicum IV <sup>6</sup> Clinical credits, 270 Clinical hours	6
<b>Total Hours</b>		<b>52</b>

**Total Didactic Credits: 38**  
**Total Clinical Credits: 14**  
**Total Clinical Hours: 630**

## Veteran and Military Health Care - MS

Code	Title	Hours
NURS 6009	Theory Foundation for Advanced Nursing <sup>45 Didactic hours</sup>	3
NURS 6286	Foundations Informatics <sup>45 Didactic hours</sup>	3
NURS 6070	Policy and Politics of Health <sup>45 Didactic hours</sup>	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>45 Didactic hours</sup>	3
NURS 6018	Home from the Battlefield: Psychological Health Care <sup>45 Didactic hours</sup>	3
NURS 6023	Veteran and Military Health Care Systems <sup>45 Didactic hours</sup>	3
NURS 6015	Women & War <sup>45 Didactic hours</sup>	3
NURS 6017	On the Home Front: Supporting Vet & Military Families <sup>45 Didactic hours</sup>	3
NURS 6019	Wounds of War: Military & Veteran Disability Evals <sup>45 Didactic hours</sup>	3
NURS 6024	Caring for Veterans: Aging, Chronicity, & End of Life <sup>45 Didactic hours</sup>	3
NURS 6025	Veteran and Military Health Care Admin Internship <sup>90 Practicum hours</sup>	2
<b>Total Hours</b>		<b>32</b>

**Total Didactic Hours: 450**  
**Total Practicum Hours: 90**  
**Total Credits: 32**

### MS Program Outcomes

Approved 2-2018

- Participate in an interdisciplinary healthcare team as a leader and an active member to promote quality and safe care at the patient, family, population or system levels.
- Develop a professional, ethical, caring and culturally sensitive approach when working with patients, families, populations or systems.
- Integrate patient care technologies to improve patient, family, population or system outcomes.
- Use theoretical frameworks to address patient, family, population or system needs.
- Integrate evidence-based knowledge into managing the care of patients, families, populations or systems to improve and protect health and wellness in Colorado and beyond.
- Formulate strategies to advocate for patients, families, populations, systems or the nursing profession in Colorado and beyond.

## Nursing Certificates

### Expanding Your Skills Through Certificates in Specific Areas of Study

Did you know you can expand your skills by earning a graduate-level certificate or post-graduate certificate in specialized areas of study?

Certificates are one of the fastest-growing postsecondary credential awarded over the past several decades, providing competency-based skills to enhance your knowledge and value to an organization.

**Post-Graduate Certificates** For those of you who already have a Master of Science in Nursing degree, our post-graduate certificates are the right option for you expand your skills and advance in your chosen profession. Nursing students may seek a post-graduate certificate for many reasons, including the ability to specialize in multiple areas within the nursing profession without having to pursue a DNP or another advanced degree as a step to taking on a new area of specialty when seeking a additional education. The program of study for the post-graduate certificate is determined by an evaluation of the student's previous course work against the required MS (indirect care only) or BS-DNP competencies, including those specified by external certification and accrediting bodies. Each student's course work is evaluated on an individual basis. To see what courses are required, view the MS or BS-DNP option for which you are interested in pursuing a post-graduate certificate. You will only have to complete the courses for which you have not yet received credit in your chosen specialty option. Enrollment is on a space-available basis. Graduates of specialty tracks are eligible to apply for national certification by examination. You will learn more about the certification organizations appropriate for this specialty during the completion of your program. Upon successful completion of the certification examination, Nurse Practitioner, Nurse Midwives, and CNS specialties may apply for licensure in all 50 states, including Colorado (visit the Colorado Board of Nursing APRN (<https://dpo.colorado.gov/Nursing/APNApplications/>) application forms page), where licensure is granted as an Advanced Practice Registered Nurse (APRN) and is required for practice.

#### 12 Options:

- Adult-Gerontology (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/>)
  - Adult-Gerontology Acute Care Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/adult-gerontology-acute-care-nurse-practitioner/>)
  - Adult-Gerontology Primary Care Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/adult-gerontology-primary-care-nurse-practitioner/>)
  - Clinical Nurse Specialist (CNS) Adult-Gerontology (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/adult-gerontology-programs/clinical-nurse-specialist-adult-gerontology/>)
- Family Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/family-nurse-practitioner/>)
- Health Care Informatics (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/health-care-informatics/>)
- i-LEAD Nursing Leadership and Health Care Systems (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/i-lead-nursing-leadership-and-health-systems/>)
- Nurse-Midwifery (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/nurse-midwifery/>)
- Women's Health Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/womens-health-nurse-practitioner/>)



- Pediatric Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>)
  - Pediatric Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>) Acute Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/acute-care-pediatric-nurse-practitioner/>)
  - Pediatric Nurse Practitioner Primary Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/primary-care-pediatric-nurse-practitioner/>)
- Psychiatric Mental Health Nurse Practitioner (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/psychiatric-mental-health-nurse-practitioner/>)
- Veteran and Military Health Care (<https://nursing.cuanschutz.edu/academics/graduate-specialties/advanced-ms-dnp-specialties/veteran-and-military-health-care/>)

**Graduate-Level Certificates** consist of academic credit offerings focused on a specialized area of study with defined outcomes. They are designed to provide extended study education to graduate-level and post-graduate-level professionals. The College of Nursing offers graduate-level certificates in the following areas:

- Health Care Informatics Certificate (<https://nursing.cuanschutz.edu/academics/graduate-certificates/certificates-program/health-care-informatics-certificate/>) This certificate provides an opportunity for health care professionals, particularly those health care professionals without a BS in nursing, to acquire knowledge and skills in the rapidly progressing field of informatics. With the recent movement toward the adoption of the electronic health record and the need for IT infrastructure to increase patient safety and facilitate evidence-based practice, there is a growing need for more informatics specialists. This certificate provides opportunities for those new to the field and those who may be practicing in the field and need a professional update.
- Nursing Education Certificate (<https://nursing.cuanschutz.edu/academics/graduate-certificates/certificates-program/nursing-education-certificate/>) Explore best practices in evidence-based teaching and learning through a flexible, online format. Broaden your nursing career options; take the next step to prepare yourself for a role in nursing education. Combine clinical expertise with nursing education to pursue career opportunities in patient education, nursing education programs, and community education. Program content facilitates learning through evidence-based teaching and learning strategies, focusing on practical nursing application and emerging practices in nursing education. Emphasis is on the knowledge and skills needed to develop curricula, teaching skills, evaluation strategies, and integrating technology in the classroom, clinical, and online environments. Complete the certificate in one year or take as individual courses. The 9-credit Nursing Education Certificate Program consists of three required courses, each 3 semester credit hours.
- Veteran and Military Health Care Certificate (<https://nursing.cuanschutz.edu/academics/graduate-certificates/certificates-program/veteran-and-military-health-care-certificate/>) Geared to the unique attributes of the veteran and military service member population, this certificate addresses the specific needs of this population including an understanding of

veteran and military culture, family dynamics, the invisible and visible consequences of war, service-connected conditions, environmental exposures, diversity, resiliency, reintegration, and making change in federal health care delivery systems. This Graduate Certificate program prepares nurses and other health care professionals to be leaders, care coordinators, and innovators in the Veterans Administration, Military Health System, and civilian community for this vulnerable population.

The Graduate Certificate curriculum consists of four of the six VMHC specialty courses. All courses are online and are available as stand-alone courses to non-degree students in all professions, as well as current CU degree seeking students. Each course is worth 3 graduate-level credits.

For further information, including application deadlines and application link, please visit: <https://nursing.cuanschutz.edu/academics/graduate-certificates> (<https://nursing.cuanschutz.edu/academics/graduate-certificates/>).

## Post-Masters Certificates

### Adult Gerontology Acute Care Nurse Practitioner

Code	Title	Hours
NURS 5981	AGACNP Practicum I <sup>2</sup> Clinical credits, 90 Clinical hours	3
NURS 6600	Adult Gerontology Acute Care Nurse Practitioner I <sup>3</sup> Didactic credits	3
NURS 5982	AGACNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6620	Adult Gero Acute Care NP Diagnostics & Therapeutics <sup>2</sup> Didactic credits	2
NURS 5983	AGACNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	4
NURS 6610	Adult Gerontology Acute Care Nurse Practitioner 2 <sup>3</sup> Didactic credits	3
<b>Total Hours</b>		<b>18</b>

**Total Didactic Credits: 8**  
**Total Clinical Credits: 8**  
**Total Clinical Hours: 360**

### Adult Gerontology Primary Care Nurse Practitioner

Code	Title	Hours
NURS 5971	AGPCNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6819	AGPCNP Primary Hlth Care I: Hlth Promotion & Prevention <sup>3</sup> Didactic credits	3
NURS 5972	AGPCNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6882	Foundational Clinical Skills Adv Pract NP <sup>1</sup> Didactic credit	1
NURS 6829	Primary Care II: Diagnosis and Management I <sup>3</sup> Didactic credits	3
NURS 5973	AGPCNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6839	Primary Care III: Diagnosis and Management II <sup>3</sup> Didactic credits	3
NURS 5974	AGPCNP Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6849	PC IV: DM III Care for Complex Older Adult <sup>3</sup> Didactic credits	3
<b>Total Hours</b>		<b>25</b>

**Total Didactic Credits: 13**  
**Total Clinical Credits: 12**  
**Total Clinical Hours: 540**

### Adult Gerontology Clinical Nurse Specialist (CNS)

Code	Title	Hours
NURS 5901	AG CNS Advanced Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	1-3
NURS 6740	ADULT-GERONTOLOGY CNS WELLNESS TO ILLNESS <sup>3</sup> Didactic credits	3
NURS 5902	AG CNS Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	1-3
NURS 6742	Adult-GerontologyCNS AdvancedPractice AcuteCareNursing <sup>3</sup> Didactic credits	3
NURS 5903	AG CNS Advanced Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	1-3
NURS 6746	Adult-Gero CNS Complex patient management <sup>3</sup> Didactic credits	3
NURS 5904	AG CNS Advanced Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	1-3
<b>Total Hours</b>		<b>13-21</b>

**Total Didactic Credits: 9**  
**Total Clinical Credits: 12**  
**Total Clinical Hours: 540**

### Family Nurse Practitioner

Code	Title	Hours
NURS 6640	FNP Hlth Promotion, Prevention, Screening <sup>3</sup> Didactic credits	3
NURS 6434	FNP Care of the Pediatric Patient <sup>3</sup> Didactic credits	3
NURS 6739	Ob-Gyn Essentials for the FNP <sup>3</sup> Didactic credits	3
NURS 5931	FNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6882	Foundational Clinical Skills Adv Pract NP <sup>1</sup> Didactic credit	1
NURS 6549	FNP Adv. Clinical Skills <sup>1</sup> Didactic credit	1
NURS 5932	FNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6528	FNP DM Physio & Psych Health I <sup>3</sup> Didactic credits	3
NURS 5933	FNP Practicum III <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6529	FNP DM Physio & Pysch Health II <sup>3</sup> Didactic credits	3
NURS 5934	FNP Practicum IV <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6950	Synthesis/Integration/Transition into FNP Practice <sup>2</sup> Didactic credits	2
<b>Total Hours</b>		<b>33</b>

**Total Didactic Credits: 19**  
**Total Clinical Credits: 14**  
**Total Clinical Hours: 630**

### Health Care Informatics

Code	Title	Hours
NURS 6794	Decision Support and Data Management	3
NURS 6274	Semantic Representation	3
NURS 6289	Information Systems Life Cycle	4
<i>Select 2 Courses from the Specialty Options below:</i>		
NURS 6279	Knowledge Management	3
NURS 6284	Digital Tools for Connected Health	3
NURS 6285	HCI Design Principles	3
NURS 6286	Foundations Informatics	3

NURS 6293	Database Mgmt Systems	3
<b>Total Hours</b>		<b>25</b>

### i-LEAD Nursing Leadership and Health Care Systems Certificate

Code	Title	Hours
NURS 6790	Systems and Leadership Theory	3
NURS 6793	Relational Communication	3
NURS 6794	Decision Support and Data Management	3
NURS 6973	State of Science: Healthcare Systems	3
NURS 6603	Health Systems and Management	3
NURS 6795	i-LEAD Administrative Internship	3
<b>Total Hours</b>		<b>18</b>

### Nurse-Midwifery

Code	Title	Hours
NURS 6377	Foundations of Midwifery Care <sup>2</sup> Didactic credits	2
NURS 6376	Reproductive Physiology <sup>3</sup> Didactic credits	3
NURS 6344	NMW Gynecologic Care <sup>3</sup> Didactic credits	3
NURS 5941	NMW Advanced Practicum I <sup>4</sup> Clinical credits, 180 Clinical hours	2-4
NURS 6378	Care of the Childbearing Family I <sup>3</sup> Didactic credits	3
NURS 6850	NMW Primary Care of Women <sup>2</sup> Didactic credits	2
NURS 6374	NMW/WHNP Adv Clinical Skills - Outpatient <sup>1</sup> Clinical credit	1
NURS 5942	NMW Advanced Practicum II <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6379	Care of the Childbearing Family II <sup>4</sup> Didactic credits	4
NURS 6375	NMW Advanced Clinical Skills - Inpatient <sup>1</sup> Clinical credit	1
NURS 5943	NMW Advanced Practicum III: Integration <sup>8</sup> Clinical credits, 360 Clinical hours	8
<b>Total Hours</b>		<b>33-35</b>

**Total Didactic Credits: 17**  
**Total Clinical Credits: 18**  
**Total Clinical Hours: 720**

### Women's Health Nurse Practitioner

Code	Title	Hours
NURS 6376	Reproductive Physiology <sup>3</sup> Didactic credits	3
NURS 6344	NMW Gynecologic Care <sup>3</sup> Didactic credits	3
NURS 5961	WHNP Advanced Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6374	NMW/WHNP Adv Clinical Skills - Outpatient <sup>1</sup> Clinical credit	1
NURS 6378	Care of the Childbearing Family I <sup>3</sup> Didactic credits	3
NURS 6850	NMW Primary Care of Women <sup>2</sup> Didactic credits	2
NURS 5962	WHNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	4
NURS 5963	WHNP Advanced Practicum III <sup>4</sup> Clinical credits, 180 Clinical hours	3
NURS 5964	WHNP Advanced Practicum IV <sup>4</sup> Clinical credits, 180 Clinical hours	4
<b>Total Hours</b>		<b>26</b>

**Total Didactic Credits: 11**  
**Total Clinical Credits: 15**  
**Total Clinical Hours: 630**

### Pediatric Nurse Practitioner Acute Care

Code	Title	Hours
NURS 5923	AC PNP Advanced Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6500	Acute Care Pediatric Nurse Practitioner I <sup>3</sup> Didactic credits	3
NURS 6450	Advanced Pediatric Physical Assessment <sup>1</sup> Didactic credit	1
NURS 6510	Acute Care Pediatric Nurse Practitioner 2 <sup>3</sup> Didactic credits	3
NURS 6456	Advance Pediatric Clinical Skills <sup>1</sup> Didactic credit	1
NURS 6520	Acute Care Pediatric Nurse Practitioner 3 <sup>3</sup> Didactic credits	3
NURS 5924	AC-PNP Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 5925	AC PNP Advanced Practicum V <sup>2</sup> Clinical credits, 90 Clinical hours	3
<b>Total Hours</b>		<b>20</b>

**Total Didactic Credits: 11**  
**Total Clinical Credits: 8**  
**Total Clinical Hours: 360**

### Pediatric Nurse Practitioner Primary Care

Code	Title	Hours
NURS 5911	PNP Advanced Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6450	Advanced Pediatric Physical Assessment <sup>1</sup> Didactic credit	1
NURS 6478	Primary Care of Children: Well Child Care <sup>4</sup> Didactic credits	4
NURS 5912	PNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6456	Advance Pediatric Clinical Skills <sup>1</sup> Didactic credit	1
NURS 5913	PNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6488	Pediatric Minor and Acute Illness <sup>3</sup> Didactic credits	3
NURS 5914	PNP Advanced Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6496	Pediatric Chronic Illness and Disability <sup>3</sup> Didactic credits	3
<b>Total Hours</b>		<b>24</b>

**Total Didactic Credits: 12**  
**Total Clinical Credits: 12**  
**Total Clinical Hours: 540**

### Psychiatric Mental Health Nurse Practitioner

Code	Title	Hours
NURS 6664	Integrated behavioral health care & common psychiatry <sup>3</sup> Didactic credits	3
NURS 6659	Adv Assess, Neurobiology & Psychopharm Across Lifespan <sup>3</sup> Didactic credits	3
NURS 5991	PMHNP Advanced Practicum I <sup>2</sup> Clinical credits, 90 Clinical hours	2
NURS 6661	Diagnosis and Management/Adults PMHNP <sup>3</sup> Didactic credits	3

NURS 6665	PsyTherapy, Behavioral Change & HP Lifespan <sup>3</sup> Didactic credits	3
NURS 5992	PMHNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6662	Diagnosis and Management/Children and Older Adult PMHNP <sup>3</sup> Didactic credits	3
NURS 5993	PMHNP Advanced Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 5994	PMHNP Advanced Practicum IV <sup>6</sup> Clinical credits, 270 Clinical hours	6
<b>Total Hours</b>		<b>29</b>

**Total Didactic Credits: 15**  
**Total Clinical Credits: 14**  
**Total Clinical Hours: 630**

### Veteran and Military Health Care

Code	Title	Hours
NURS 6018	Home from the Battlefield: Psychological Health Care <sup>45</sup> Didactic Hours	3
NURS 6023	Veteran and Military Health Care Systems <sup>45</sup> Didactic Hours	3
NURS 6015	Women & War <sup>45</sup> Didactic Hours	3
NURS 6017	On the Home Front: Supporting Vet & Military Families <sup>45</sup> Didactic Hours	3
NURS 6019	Wounds of War: Military & Veteran Disability Evals <sup>45</sup> Didactic Hours	3
NURS 6024	Caring for Veterans: Aging, Chronicity, & End of Life <sup>45</sup> Didactic Hours	3
NURS 6025	Veteran and Military Health Care Admin Internship 90 Practicum Hours (including seminar)	2
<b>Total Hours</b>		<b>20</b>

**Total Didactic Hours: 270**  
**Total Practicum Hours: 90**

## Graduate Certificates

### Health Care Informatics Certificate - 16 credits required for the certificate.

Code	Title	Hours
NURS 6794	Decision Support and Data Management	3
NURS 6274	Semantic Representation	3
NURS 6289	Information Systems Life Cycle	4
<b>Total Hours</b>		<b>10</b>

Specialty Options (Select 2)

Code	Title	Hours
NURS 6279	Knowledge Management	3
NURS 6284	Digital Tools for Connected Health	3
NURS 6285	HCI Design Principles	3
NURS 6286	Foundations Informatics	3
NURS 6293	Database Mgmt Systems	3

## Veteran and Military Health Care Certificate - 12 Credits required for the certificate.

Code	Title	Hours
NURS 6018	Home from the Battlefield: Psychological Health Care <sup>45</sup> Didactic hours	3
NURS 6023	Veteran and Military Health Care Systems <sup>45</sup> Didactic hours	3
NURS 6015	Women & War <sup>45</sup> Didactic hours	3
NURS 6017	On the Home Front: Supporting Vet & Military Families! <sup>45</sup> Didactic hours	3
NURS 6019	Wounds of War: Military & Veteran Disability Evals <sup>45</sup> Didactic hours	3
NURS 6024	Caring for Veterans: Aging, Chronicity, & End of Life <sup>45</sup> Didactic hours	3
<b>Total Hours</b>		<b>18</b>

## Nursing Education Certificate - 9 Credits required for the certificate.

Code	Title	Hours
NURS 7865	Outcome-focused Curriculum and Program Evaluation	3
NURS 7862	Best Practices to Enhance Teaching and Learning	3
NURS 7864	Evolving Nursing Educ Sci and Nurse Educator Roles	3

## Nursing - Doctorate in Nursing Practice (DNP)

### Contact Info

Office location: Education II North, Room 3255  
 Mailing address: 13120 East 19th Avenue, 3rd Floor  
 Aurora, CO 80045  
 Phone number: 303-724-1812  
 Web Page: <https://nursing.cuanschutz.edu/>  
 Email: [nursing.admissions@ucdenver.edu](mailto:nursing.admissions@ucdenver.edu)

### Overview: Our Doctor of Nursing Practice program ranked #21 in the nation's top nursing programs per U.S. News & World Report 2017

When you apply to the Doctor of Nursing Practice (DNP) program at the University of Colorado Anschutz, you are enrolling in a high-quality program that's routinely ranked among the best DNP programs in the nation by *US News & World Report*. We also earned the #4 Best Online Graduate Nursing program in the nation in 2018.

Our DNP program is designed for nurses who want to move into advanced practice, public health and leadership. With your DNP, you'll help improve healthcare within diverse patient populations and systems across the globe. This practice-based doctorate provides courses that focus on evidence-based practice to improve clinical care delivery, program evaluation, patient and population incomes, and health system leadership management. We offer distinct areas of study and the ability to earn a master's degree on your way to your DNP.

Three days every academic year will be spent on campus in person, while all of your other classes are online. There are no more than three intensives on campus per academic year. The hands-on clinical experiences are an integral part of our college mission and provide

students with a blend of comprehensive education with on-the-job training. A DNP can open up new doors and give you access to more opportunities, responsibility and higher pay.

### Pathways to Your DNP:

There are two paths registered nurses (RNs) can take to earn their DNP.

- **BS to DNP** - If you have a Bachelor of Science degree in nursing, you can earn your DNP through the College of Nursing with our BSN to DNP degree, which takes you directly from your BS-level work to graduating with a doctorate. An along the way, you will earn a Master of Science degree, too.
- **MS to DNP** - This program is designed for RNs who hold a Master of Science in Nursing. This program generally takes one to two years of full-time study, or two to three years of part-time study to complete.

For a full list of DNP admissions requirements, please visit: <https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-nursing-practice-admissions> (<https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-nursing-practice-admissions/>).

DNP applications are submitted through Nursing's Centralized Application Service (NursingCAS (<https://nursingcas2021.liaisoncas.com/applicant-ux/#/login>)).

From public health nursing to health leadership and veteran and military health care leadership, our DNP offers distinct areas of study.

- **DNP Advanced Practice Registered Nurse (APRN)** program prepares advanced practice nurses to improve healthcare within diverse patient populations and systems across the globe. Curriculum is based on the DNP Essentials (<https://www.aacnnursing.org/DNP/DNP-Essentials/>) (AACN, 2006) and includes coursework to elevate APRNs to a new stage of leadership, advocacy, and clinical scholarship within their chosen specialty.
- **DNP Health Leadership**. Learn to be a leader in the healthcare system. This high-demand program prepares you to lead systems in hospitals to the government to nonprofits. You'll manage others across a continuum of primary care, acute care, long-term care, school nursing, correctional facilities, home care and care coordination. The focus of this post-graduate program is efficient, high-quality care with the best outcomes.
- **DNP/MPH**. Join the ranks of public health nurse leaders. Get the combined power of nursing and public health in a dual-degree program. A Doctor of Nursing Practice (DNP) is offered from the University of Colorado College of Nursing - and a Master of Public Health (MPH) is offered from the Colorado School of Public Health. This degree prepares nurse leaders to address the most pressing public health challenges of our time like COVID-19 and prepares them for national and global health leadership roles. A bonus of earning the degrees simultaneously, is this degree requires 21 fewer credits than earning the degrees separately. Students work hand-in-hand with experts to create and lead new models of care delivery that advance health equity and improve population health. Students can tailor studies to their interests. the dual degree is ideal for students with a BS in Nursing and nurses with a master's in a nursing specialty other than public/community health nursing. Nurses who hold a Master of Public/Community Health Nursing may apply to either the dual degree or the DNP-PHN degree programs.
- **DNP-PHN** Expand your reach and streamline your focus in healthcare with our Doctor of Nursing Practice Public Health Nursing (DNP-



PHN) program. This specialty prepares nurses for leadership roles in public and community health settings. You'll learn how to assess, plan and evaluate nursing interventions for patients, families and clinical populations. The focus will be on promoting health, disease prevention and program management. There are several pathways to attain this degree: if you have a master's in Public Health Nursing or community health nursing; and if you are an Advanced Practice Registered Nurse (APRN) in a clinical specialty other than Public/Community Health.

- **DNP Veteran and Military Health Care Leadership.** Serve the men and women who have fought for our country by providing excellent healthcare delivery through our DNP Veteran and Military Health Care Leadership program. This program provides students with specialized education and training to work with veterans and their military families. The courses prepare nurse leaders to be care coordinators, change agents and innovators in healthcare for former and current service members. The online program is designed for working nurses who are currently novice-to-expert leaders and are affiliated with the military community.

\*As a part of the DNP Capstone series of courses, all DNP-PHN and DNP/MPH students are required to complete practicum credit hours in public/community health settings. Practicum experiences for out-of-state students must be negotiated among course instructors, students, and their program advisors to best fit the student's learning needs and professional goals. For Colorado students, the majority of practice sites are in local and state community-based agencies, including public health departments. Many of the sites serve the most vulnerable populations in Colorado and Region VIII. As established by the American Association of Colleges of Nursing (2006), a minimum of 1,000 hours of supervised academic post-baccalaureate practice is required to achieve learning objectives associated with the DNP Essentials and specialty competencies. CU College of Nursing DNP curricula, including the DNP-PHN and DNP/MPH, are based on the expectation that the first 500 hours are accomplished in master's level nursing education. Baccalaureate-prepared nurses and other applicants who cannot document 500 post-baccalaureate academically-supervised clinical practicum hours will be required to supplement their DNP program by enrolling in additional (1-12) credit hours of advanced public health nursing practicum to complete the balance of the full 1,000 practicum hours.

## MS - DNP

### DNP - APRN (Advanced Practice Registered Nurse)

Code	Title	Hours
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Practicum credit	1
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Practicum credits	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1

NURS 8040	DNP Project Course II <sup>3</sup> Practicum credits	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Practicum credits	4
<b>Total Hours</b>		<b>35</b>

**Total Didactic Credits: 14**

**Total Practicum Credits: 12**

**Total Practicum Hours: 540**

\*Students must take BOTH 6107 and 6109. One of these may have been completed in the MS program. We will allow transfer credit for one.

\*\*Courses may have been completed during MS degree Program. Please contact Graduate Program Advisor to review plan of study

\*\*\*1 Project Practicum Credit - 45 face-to-face hours

### DNP - PHN (Public Health Nursing)

Code	Title	Hours
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 6633	Advanced Public Health Nursing <sup>3</sup> Didactic credits	3
NURS 6782	Advanced Public Health Nursing Practicum II <sup>2</sup> Project credits, 90 Practicum hours	1-6
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
BIOS 6601	Applied Biostatistics I <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6800	Leadership, Financial Management and Innovation	3
NURS 8020	DNP Project Preparation <sup>1</sup> Project credit, 45 Practicum hours	1
NURS 8030	DNP Project I <sup>4</sup> Project credits, 180 Practicum hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1
NURS 8040	DNP Project Course II <sup>3</sup> Project credits, 135 Practicum hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
<b>Total Hours</b>		<b>32-37</b>

\*\*Courses may have been completed during MS degree Program. Please contact Graduate Program Advisor to review plan of study

\*\*\*1 Project Practicum Credit - 45 face-to-face hours

**Total Didactic Credits: 20**

**Total Project Credits: 10**

**Total Practicum Hours: 450**

### DNP - Health Systems Leadership

Code	Title	Hours
NURS 6009	Theory Foundation for Advanced Nursing	3
NURS 6070	Policy and Politics of Health	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence	3
NURS 6286	Foundations Informatics	3
NURS 6603	Health Systems and Management	3
NURS 6800	Leadership, Financial Management and Innovation	3
NURS 6796	Executive Leadership and Organizational Systems	3

NURS 6107	Research & Quality Improve Methods:Principles of Evidence	3
NURS 7631	Advanced Quantitative Research Design, Methods & Analysis I	3
NURS 8020	DNP Project Preparation	1
NURS 8030	DNP Project I	4
NURS 8035	DNP Seminar 1	1
NURS 8040	DNP Project Course II	3
NURS 8045	DNP Seminar 2	1
NURS 8050	DNP Project III	4
NURS 8000	DNP Project Variable Hours Course	1-5
<b>Total Hours</b>		<b>45-49</b>

## DNP - Veteran and Military Health Care Leadership

Code	Title	Hours
NURS 6286	Foundations Informatics <sup>45 Didactic Hours</sup>	3
NURS 6024	Caring for Veterans: Aging, Chronicity, & End of Life <sup>45 Didactic Hours</sup>	3
NURS 6107	Research & Quality Improve Methods:Principles of Evidence <sup>45 Didactic Hours</sup>	3
NURS 6017	On the Home Front: Supporting Vet & Military Families <sup>45 Didactic Hours</sup>	3
NURS 6015	Women & War <sup>45 Didactic Hours</sup>	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>45 Didactic Hours</sup>	3
NURS 6603	Health Systems and Management <sup>45 Didactic Hours</sup>	3
NURS 6023	Veteran and Military Health Care Systems <sup>45 Didactic Hours</sup>	3
NURS 6018	Home from the Battlefield: Psychological Health Care <sup>45 Didactic Hours</sup>	3
NURS 6796	Executive Leadership and Organizational Systems <sup>45 Didactic Hours</sup>	3
NURS 6019	Wounds of War: Military & Veteran Disability Evals <sup>45 Didactic Hours</sup>	3
NURS 6070	Policy and Politics of Health <sup>45 Didactic Hours</sup>	3
NURS 6800	Leadership, Financial Management and Innovation <sup>45 Didactic Hours</sup>	3
NURS 8020	DNP Project Preparation <sup>45 Practicum hours</sup>	1
NURS 8030	DNP Project I <sup>180 Practicum hours</sup>	4
NURS 8035	DNP Seminar 1 <sup>15 Didactic Hours</sup>	1
NURS 8040	DNP Project Course II <sup>125 Practicum hours</sup>	3
NURS 8045	DNP Seminar 2 <sup>15 Didactic Hours</sup>	1
NURS 8050	DNP Project III <sup>180 Practicum hours</sup>	4
NURS 8000	DNP Project Variable Hours Course <sup>Variable</sup>	1-5
<b>Total Hours</b>		<b>54-58</b>

**Total Credits: 53**

**Total Didactic Hours: 615**

**Total Practicum Hours: 530**

## DNP - MPH (Public Health)

Code	Title	Hours
BIOS 6601	Applied Biostatistics I <sup>3 Didactic credits</sup>	3
PUBH 6600	Foundations in Public Health <sup>2 Didactic credits</sup>	2
EHOH 6614	Occupational and Environmental Health <sup>3 Didactic credits</sup>	3

CBHS 6610	Social and Behavioral Factors and Health <sup>3 Didactic credits</sup>	3
EHOH 6622	Intro to Public Health Emergency Preparedness <sup>3 Didactic credits</sup>	3
EPID 6630	Epidemiology <sup>3 Didactic credits</sup>	3
HSMP 6634	Management, Budgeting and Public Health Administration <sup>3 Didactic credits</sup>	3
NURS 6286	Foundations Informatics <sup>3 Didactic credits</sup>	3
NURS 6800	Leadership, Financial Management and Innovation <sup>3 Didactic credits</sup>	3
HSMP 6601	Introduction to HSMP <sup>3 Didactic credits</sup>	3
EPID 6640	Investigation of Disease Outbreaks <sup>2 Didactic credits</sup>	2
NURS 6633	Advanced Public Health Nursing <sup>3 Didactic credits</sup>	3
NURS 6752	Advanced Public Health Nursing Practicum I <sup>3 Clinical credits 135 Clinical hours</sup>	1-6
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3 Didactic credits</sup>	3
CBHS 6612	Methods in Research and Evaluation <sup>3 Didactic credits</sup>	3
NURS 6782	Advanced Public Health Nursing Practicum II <sup>2 Clinical credits 90 Clinical hours</sup>	1-6
NURS 8020	DNP Project Preparation <sup>1 Didactic credit</sup>	1
NURS 8030	DNP Project I <sup>4 Didactic credits</sup>	4
NURS 8035	DNP Seminar 1 <sup>3 Didactic credits</sup>	1
NURS 8040	DNP Project Course II <sup>3 Didactic credits</sup>	3
NURS 8045	DNP Seminar 2 <sup>1 Didactic credit</sup>	1
NURS 8050	DNP Project III <sup>4 Didactic credits</sup>	4
<b>Total Hours</b>		<b>56-66</b>

**Total Didactic Credits: 60**

**Total Clinical Credits: 5**

**Total MPH Elective credits 4**

**Total Clinical Hours: 225**

## BS-DNP Programs

### MPH (Public Health) BS - DNP

Code	Title	Hours
BIOS 6601	Applied Biostatistics I <sup>3 Didactic credits</sup>	3
PUBH 6600	Foundations in Public Health <sup>3 Didactic credits</sup>	2
EHOH 6614	Occupational and Environmental Health <sup>3 Didactic credits</sup>	3
CBHS 6610	Social and Behavioral Factors and Health <sup>3 Didactic credits</sup>	3
EHOH 6622	Intro to Public Health Emergency Preparedness <sup>3 Didactic credits</sup>	3
EPID 6630	Epidemiology <sup>3 Didactic credits</sup>	3
HSMP 6634	Management, Budgeting and Public Health Administration <sup>3 Didactic credits</sup>	3
NURS 6286	Foundations Informatics <sup>3 Didactic credits</sup>	3
NURS 6800	Leadership, Financial Management and Innovation <sup>3 Didactic credits</sup>	3
HSMP 6601	Introduction to HSMP <sup>3 Didactic credits</sup>	3
EPID 6640	Investigation of Disease Outbreaks <sup>2 Didactic credits</sup>	2
NURS 6633	Advanced Public Health Nursing <sup>3 Didactic credits</sup>	3
NURS 6752	Advanced Public Health Nursing Practicum I <sup>3 Clinical credits 135 Clinical hours</sup>	1-6

NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
CBHS 6612	Methods in Research and Evaluation <sup>3</sup> Didactic credits	3
NURS 6782	Advanced Public Health Nursing Practicum II <sup>2</sup> Clinical credits 90 Clinical hours	1-6
NURS 8020	DNP Project Preparation <sup>1</sup> Didactic credit	1
NURS 8030	DNP Project I <sup>4</sup> Didactic credits	4
NURS 8035	DNP Seminar 1 <sup>3</sup> Didactic credits	1
NURS 8040	DNP Project Course II <sup>3</sup> Didactic credits	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Didactic credits	4
<b>Total Hours</b>		<b>56-66</b>

**Total Didactic Credits: 60**  
**Total Clinical Credits: 5**  
**Total MPH Elective credits 4**  
**Total Clinical Hours: 225**

### Veteran and Military Health Care Leadership BS - DNP

Code	Title	Hours
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>45</sup> Didactic Hours	3
NURS 6023	Veteran and Military Health Care Systems <sup>45</sup> Didactic Hours	3
NURS 6018	Home from the Battlefield: Psychological Health Care <sup>45</sup> Didactic Hours	3
NURS 6009	Theory Foundation for Advanced Nursing <sup>45</sup> Didactic Hours	3
NURS 6019	Wounds of War: Military & Veteran Disability Evals <sup>45</sup> Didactic Hours	3
NURS 6070	Policy and Politics of Health <sup>45</sup> Didactic Hours	3
NURS 6286	Foundations Informatics <sup>45</sup> Didactic Hours	3
NURS 6024	Caring for Veterans: Aging, Chronicity, & End of Life <sup>45</sup> Didactic Hours	3
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>45</sup> Didactic Hours	3
NURS 6017	On the Home Front: Supporting Vet & Military Families <sup>45</sup> Didactic Hours	3
NURS 6015	Women & War <sup>45</sup> Didactic Hours	3
NURS 6603	Health Systems and Management <sup>45</sup> Didactic Hours	3
NURS 6800	Leadership, Financial Management and Innovation <sup>45</sup> Didactic Hours	3
NURS 6025	Veteran and Military Health Care Admin Internship 90 Practicum hours	2
NURS 6796	Executive Leadership and Organizational Systems <sup>45</sup> Didactic Hours	3
NURS 8020	DNP Project Preparation <sup>45</sup> Practicum hours	1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>45</sup> Didactic Hours	3
NURS 8030	DNP Project I <sup>180</sup> Practicum hours	4
NURS 8035	DNP Seminar 1 <sup>15</sup> Didactic Hours	1
NURS 8040	DNP Project Course II <sup>125</sup> Practicum hours	3
NURS 8045	DNP Seminar 2 <sup>15</sup> Didactic Hours	1
NURS 8050	DNP Project III <sup>180</sup> Practicum hours	4

NURS 8000	DNP Project Variable Hours Course <sup>Variable</sup>	1-5
<b>Total Hours</b>		<b>62-66</b>

**Total Didactic hours: 705**  
**Total Practicum Hours: 620**  
**Total credits: 61**

### Adult Gerontology Acute Care Nurse Practitioner BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6599	Intro to AG-ACNP <sup>1</sup> Didactic credits	1
NURS 5981	AGACNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6600	Adult Gerontology Acute Care Nurse Practitioner I <sup>3</sup> Didactic credits	3
NURS 5982	AGACNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6620	Adult Gero Acute Care NP Diagnostics & Therapeutics <sup>2</sup> Didactic credits	2
NURS 5983	AGACNP Practicum III <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6610	Adult Gerontology Acute Care Nurse Practitioner 2 <sup>3</sup> Didactic credits	3
NURS 5984	AGACNP Practicum IV <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6849	PC IV: DM III Care for Complex Older Adult <sup>3</sup> Didactic credits	3
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credit, 45 Clinical hours	1
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 8040	DNP Project Course II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Clinical credits, 180 Clinical hours	4
<b>Total Hours</b>		<b>75</b>

**Total Didactic Credits: 49**  
**Total Clinical Credits: 26**  
**Total Clinical Hours: 1170**

### Adult-Gerontology Primary Care Nurse Practitioner BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 5971	AGPCNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6819	AGPCNP Primary Care I: Hlth Promotion & Prevention <sup>3</sup> Didactic credits	3
NURS 5972	AGPCNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6882	Foundational Clinical Skills Adv Pract NP <sup>1</sup> Didactic credit	1
NURS 6829	Primary Care II: Diagnosis and Management I <sup>3</sup> Didactic credits	3
NURS 5973	AGPCNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6839	Primary Care III: Diagnosis and Management II <sup>3</sup> Didactic credits	3
NURS 5974	AGPCNP Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6849	PC IV: DM III Care for Complex Older Adult <sup>3</sup> Didactic credits	3
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credit, 45 Clinical hours	1
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 8040	DNP Project Course II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Clinical credits, 180 Clinical hours	4
<b>Total Hours</b>		<b>74</b>

**Total Didactic Credits: 50**  
**Total Clinical Credits: 24**  
**Total Clinical Hours: 1080**

### Clinical Nurse Specialist (CNS) Adult-Gerontology BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3

NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 5901	AG CNS Advanced Practicum I <sup>3</sup> Clinical credits 135 Clinical hours	1-3
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 5902	AG CNS Advanced Practicum II <sup>3</sup> Clinical credits 135 Clinical hours	1-3
NURS 6740	ADULT-GERONTOLOGY CNS WELLNESS TO ILLNESS <sup>3</sup> Didactic credits	3
NURS 5903	AG CNS Advanced Practicum III <sup>3</sup> Clinical credits 135 Clinical hours	1-3
NURS 6742	Adult-GerontologyCNS AdvancedPractice AcuteCareNursing <sup>3</sup> Didactic credits	3
NURS 5904	AG CNS Advanced Practicum IV <sup>3</sup> Clinical credits 135 Clinical hours	1-3
NURS 6746	Adult-Gero CNS Complex patient management <sup>3</sup> Didactic credits	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credit, 45 Clinical hours	1
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credits	1
NURS 8000	DNP Project Variable Hours Course <sup>Variable</sup>	1-5
NURS 8040	DNP Project Course II <sup>3</sup> Clinical credits 135 Clinical hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credits	1
NURS 8050	DNP Project III <sup>4</sup> Clinical credits, 180 Clinical hours	4

**Total Hours 63-75**

**Total Didactic Credits: 46**  
**Total Clinical Credits: 24**  
**Total Clinical Hours: 1080**

### Family Nurse Practitioner BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6640	FNP Hlth Promotion, Prevention, Screening <sup>3</sup> Didactic credits	3



NURS 6434	FNP Care of the Pediatric Patient <sup>3</sup> Didactic credits	3
NURS 6739	Ob-Gyn Essentials for the FNP <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 5931	FNP Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6882	Foundational Clinical Skills Adv Pract NP <sup>1</sup> Didactic credit	1
NURS 6549	FNP Adv. Clinical Skills <sup>1</sup> Didactic credit	1
NURS 5932	FNP Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6528	FNP DM Physio & Psych Health I <sup>3</sup> Didactic credits	3
NURS 5933	FNP Practicum III <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6529	FNP DM Physio & Pysch Health II <sup>3</sup> Didactic credits	3
NURS 5934	FNP Practicum IV <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6950	Synthesis/Integration/Transition into FNP Practice <sup>2</sup> Didactic credits	2
NURS 6107	Research & Quality Improve Methods:Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credit, 45 Clinical hours	1
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 8040	DNP Project Course II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Clinical credits, 180 Clinical hours	4
<b>Total Hours</b>		<b>82</b>

**Total Didactic Credits: 56**  
**Total Clinical Credits: 26**  
**Total Clinical Hours: 1170**

### i-Lead Nursing Leadership and Health Care Systems BS - DNP

Code	Title	Hours
NURS 6009	Theory Foundation for Advanced Nursing <sup>45</sup> Didactic hours	3
NURS 6286	Foundations Informatics <sup>45</sup> Didactic hours	3
NURS 6070	Policy and Politics of Health <sup>45</sup> Didactic hours	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>45</sup> Didactic hours	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>45</sup> Didactic hours	3
NURS 6790	Systems and Leadership Theory <sup>45</sup> Didactic hours	3
NURS 6973	State of Science: Healthcare Systems <sup>30</sup> Didactic hours	3
NURS 6794	Decision Support and Data Management <sup>45</sup> Didactic hours	3
NURS 6795	i-LEAD Administrative Internship <sup>135</sup> Clinical hours	3
NURS 6800	Leadership, Financial Management and Innovation <sup>45</sup> Didactic hours	3
NURS 6603	Health Systems and Management <sup>45</sup> Didactic hours	3
NURS 6107	Research & Quality Improve Methods:Principles of Evidence <sup>45</sup> Didactic hours	3

NURS 6796	Executive Leadership and Organizational Systems <sup>45</sup> Didactic hours	3
NURS 8000	DNP Project Variable Hours Course <sup>Variable</sup>	1-5
NURS 8020	DNP Project Preparation <sup>45</sup> Clinical hours	1
NURS 7631	Advanced Quantitative Research Design, Methods & Analysis I <sup>45</sup> Didactic hours	3
NURS 8035	DNP Seminar 1 <sup>180</sup> Clinical hours	1
NURS 8040	DNP Project Course II <sup>135</sup> Clinical hours	3
NURS 8045	DNP Seminar 2	1
NURS 8050	DNP Project III <sup>180</sup> Clinical hours	4
<b>Total Hours</b>		<b>53-57</b>

**Total Didactic Hours: 625**  
**Total Clinical Hours: 675**  
**Total Credits: 59**

### Nurse-Midwifery - BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6377	Foundations of Midwifery Care <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>3</sup> Didactic credits	2
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6376	Reproductive Physiology <sup>3</sup> Didactic credits	3
NURS 6344	NMW Gynecologic Care <sup>3</sup> Didactic credits	3
NURS 5941	NMW Advanced Practicum I <sup>4</sup> Clinical credits, 180 Clinical hours	2-4
NURS 6378	Care of the Childbearing Family I <sup>3</sup> Didactic credits	3
NURS 6850	NMW Primary Care of Women <sup>3</sup> Didactic credits	2
NURS 6374	NMW/WHNP Adv Clinical Skills - Outpatient <sup>3</sup> Didactic credits	1
NURS 5942	NMW Advanced Practicum II <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 6379	Care of the Childbearing Family II <sup>3</sup> Didactic credits	4
NURS 6375	NMW Advanced Clinical Skills - Inpatient <sup>3</sup> Didactic credits	1
NURS 5943	NMW Advanced Practicum III: Integration <sup>8</sup> Clinical credits, 360 Clinical hours	8
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credits, 45 Clinical hours	1
NURS 6107	Research & Quality Improve Methods:Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>3</sup> Didactic credits	1
NURS 8000	DNP Project Variable Hours Course <sup>3</sup> Didactic credits	1-5

NURS 8040	DNP Project Course II	<sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 8045	DNP Seminar 2	<sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III	<sup>4</sup> Clinical credits, 180 Clinical hours	4

**Total Hours** 83-89

**Total Didactic Credits:** 54

**Total Clinical Credits:** 30

**Total Clinical Hours:** 1260

### Women's Health Nurse Practitioner BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology	<sup>3</sup> Didactic credits 3
NURS 6286	Foundations Informatics	<sup>3</sup> Didactic credits 3
NURS 6009	Theory Foundation for Advanced Nursing	<sup>3</sup> Didactic credits 3
NURS 6222	Adv Pharm & Therapeutics	<sup>3</sup> Didactic credits 3
NURS 6070	Policy and Politics of Health	<sup>3</sup> Didactic credits 3
NURS 6761	Advanced Assessment	<sup>3</sup> Didactic credits 3
NURS 6859	Advanced Professional Role	<sup>2</sup> Didactic credits 2
NURS 6109	Evidence-Based Practice: Evaluating Evidence	<sup>3</sup> Didactic credits 3
NURS 6376	Reproductive Physiology	<sup>3</sup> Didactic credits 3
NURS 6344	NMW Gynecologic Care	<sup>3</sup> Didactic credits 3
NURS 5961	WHNP Advanced Practicum I	<sup>3</sup> Clinical credits, 135 Clinical hours 3
NURS 6374	NMW/WHNP Adv Clinical Skills - Outpatient	<sup>1</sup> Clinical credit 1
NURS 6378	Care of the Childbearing Family I	<sup>3</sup> Didactic credits 3
NURS 6850	NMW Primary Care of Women	<sup>2</sup> Didactic credits 2
NURS 5962	WHNP Advanced Practicum II	<sup>3</sup> Clinical credits, 135 Clinical hours 4
NURS 5963	WHNP Advanced Practicum III	<sup>4</sup> Clinical credits, 180 Clinical hours 3
NURS 5964	WHNP Advanced Practicum IV	<sup>4</sup> Clinical credits, 180 Clinical hours 4
NURS 6107	Research & Quality Improve Methods:Principles of Evidence	<sup>3</sup> Didactic credits 3
NURS 8020	DNP Project Preparation	<sup>1</sup> Clinical credits, 45 Clinical hours 1
NURS 6800	Leadership, Financial Management and Innovation	<sup>3</sup> Didactic credits 3
NURS 6303	Epidemiology & Health	<sup>3</sup> Didactic credits 3
NURS 8030	DNP Project I	<sup>4</sup> Clinical credits, 180 Clinical hours 4
NURS 8035	DNP Seminar 1	<sup>1</sup> Didactic credits 1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence	<sup>3</sup> Didactic credits 3
NURS 8040	DNP Project Course II	<sup>3</sup> Clinical credits, 135 Clinical hours 3
NURS 8045	DNP Seminar 2	<sup>3</sup> Didactic credits 1
NURS 8050	DNP Project III	<sup>4</sup> Clinical credits, 180 Clinical hours 4
<b>Total Hours</b>		<b>75</b>

**Total Didactic Credits:** 48

**Total Clinical Credits:** 27

**Total Clinical Hours:** 1170

### Pediatric Nurse Practitioner Acute Care BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology	<sup>3</sup> Didactic credits 3
NURS 6286	Foundations Informatics	<sup>3</sup> Didactic credits 3
NURS 6222	Adv Pharm & Therapeutics	<sup>3</sup> Didactic credits 3
NURS 6070	Policy and Politics of Health	<sup>3</sup> Didactic credits 3
NURS 6761	Advanced Assessment	<sup>3</sup> Didactic credits 3
NURS 6859	Advanced Professional Role	<sup>2</sup> Didactic credits 2
NURS 6009	Theory Foundation for Advanced Nursing	<sup>3</sup> Didactic credits 3
NURS 6109	Evidence-Based Practice: Evaluating Evidence	<sup>3</sup> Didactic credits 3
NURS 5921	AC-PNP Practicum I	<sup>2</sup> Clinical credits, 90 Clinical hours 2
NURS 6490	Pediatric Primary Care Essentials	<sup>3</sup> Didactic credits 3
NURS 6450	Advanced Pediatric Physical Assessment	<sup>1</sup> Didactic credits 1
NURS 5922	AC PNP Advanced Practicum II	<sup>2</sup> Clinical credits, 90 Clinical hours 2
NURS 6456	Advance Pediatric Clinical Skills	<sup>1</sup> Didactic credit 1
NURS 5923	AC PNP Advanced Practicum III	<sup>3</sup> Clinical credits, 135 Clinical hours 3
NURS 6500	Acute Care Pediatric Nurse Practitioner I	<sup>3</sup> Didactic credits 3
NURS 5924	AC-PNP Practicum IV	<sup>3</sup> Clinical credits, 135 Clinical hours 3
NURS 6510	Acute Care Pediatric Nurse Practitioner 2	<sup>3</sup> Didactic credits 3
NURS 5925	AC PNP Advanced Practicum V	<sup>3</sup> Clinical credits, 135 Clinical hours 3
NURS 6520	Acute Care Pediatric Nurse Practitioner 3	<sup>3</sup> Didactic credits 3
NURS 6107	Research & Quality Improve Methods:Principles of Evidence	<sup>3</sup> Didactic credits 3
NURS 6800	Leadership, Financial Management and Innovation	<sup>3</sup> Didactic credits 3
NURS 8020	DNP Project Preparation	<sup>1</sup> Clinical credit, 45 Clinical hours 1
NURS 6303	Epidemiology & Health	<sup>3</sup> Didactic credits 3
NURS 8030	DNP Project I	<sup>4</sup> Clinical credits, 180 Clinical hours 4
NURS 8035	DNP Seminar 1	<sup>1</sup> Didactic credit 1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence	<sup>3</sup> Didactic credits 3
NURS 8040	DNP Project Course II	<sup>3</sup> Clinical credits, 135 Clinical hours 3
NURS 8045	DNP Seminar 2	<sup>1</sup> Didactic credit 1
NURS 8050	DNP Project III	<sup>4</sup> Clinical credits, 180 Clinical hours 4
<b>Total Hours</b>		<b>76</b>

**Total Didactic Credits: 51**  
**Total Clinical Credits: 25**  
**Total Clinical Hours: 1125**

### Pediatric Nurse Practitioner Primary Care BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 5911	PNP Advanced Practicum I <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6450	Advanced Pediatric Physical Assessment <sup>1</sup> Didactic credit	1
NURS 6478	Primary Care of Children: Well Child Care <sup>4</sup> Didactic credits	4
NURS 5912	PNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6456	Advance Pediatric Clinical Skills <sup>1</sup> Didactic credit	1
NURS 5913	PNP Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6488	Pediatric Minor and Acute Illness <sup>3</sup> Didactic credits	3
NURS 5914	PNP Advanced Practicum IV <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6496	Pediatric Chronic Illness and Disability <sup>3</sup> Didactic credits	3
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credit, 45 Clinical hours	1
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 8040	DNP Project Course II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Clinical credits, 180 Clinical hours	4
<b>Total Hours</b>		<b>73</b>

**Total Didactic Credits: 49**  
**Total Clinical Credits: 24**  
**Total Clinical Hours: 1080**

### Psychiatric Mental Health Nurse Practitioner BS - DNP

Code	Title	Hours
NURS 6243	Adv Pathophysiology <sup>3</sup> Didactic credits	3
NURS 6009	Theory Foundation for Advanced Nursing <sup>3</sup> Didactic credits	3
NURS 6664	Integrated behavioral health care & common psychiatri <sup>3</sup> Didactic credits	3

NURS 6222	Adv Pharm & Therapeutics <sup>3</sup> Didactic credits	3
NURS 6070	Policy and Politics of Health <sup>3</sup> Didactic credits	3
NURS 6665	PsyTherapy, BehavioralChange & HP Lifespan <sup>3</sup> Didactic credits	3
NURS 6761	Advanced Assessment <sup>3</sup> Didactic credits	3
NURS 6859	Advanced Professional Role <sup>2</sup> Didactic credits	2
NURS 6109	Evidence-Based Practice: Evaluating Evidence <sup>3</sup> Didactic credits	3
NURS 6659	Adv Assess,Neurobiology&Psychopharm AcrossLifespan <sup>3</sup> Didactic credits	3
NURS 5991	PMHNP Advanced Practicum I <sup>2</sup> Clinical credits, 90 Clinical hours	2
NURS 6286	Foundations Informatics <sup>3</sup> Didactic credits	3
NURS 6661	Diagnosis and Management/Adults PMHNP <sup>3</sup> Didactic credits	3
NURS 5992	PMHNP Advanced Practicum II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 6662	Diagnosis and Management/Children and Older Adult PMHNP <sup>3</sup> Didactic credits	3
NURS 5993	PMHNP Advanced Practicum III <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 5994	PMHNP Advanced Practicum IV <sup>6</sup> Clinical credits, 270 Clinical hours	6
NURS 6107	Research & Quality Improve Methods: Principles of Evidence <sup>3</sup> Didactic credits	3
NURS 6800	Leadership, Financial Management and Innovation <sup>3</sup> Didactic credits	3
NURS 8020	DNP Project Preparation <sup>1</sup> Clinical credit, 45 Clinical hours	1
NURS 6303	Epidemiology & Health <sup>3</sup> Didactic credits	3
NURS 8030	DNP Project I <sup>4</sup> Clinical credits, 180 Clinical hours	4
NURS 8035	DNP Seminar 1 <sup>1</sup> Didactic credit	1
NURS 6108	Inferent Statistics & Quality Improvement Applying Evidence <sup>3</sup> Didactic credits	3
NURS 8040	DNP Project Course II <sup>3</sup> Clinical credits, 135 Clinical hours	3
NURS 8045	DNP Seminar 2 <sup>1</sup> Didactic credit	1
NURS 8050	DNP Project III <sup>4</sup> Clinical credits, 180 Clinical hours	4
<b>Total Hours</b>		<b>78</b>

**Total Didactic Credits: 52**  
**Total Clinical Credits: 26**  
**Total Clinical Hours: 1170**

### DNP Program Outcomes

Approved 2-2108

1. Lead interdisciplinary teams to improve the quality and safety of health care delivery strategies.
2. Formulate scientifically based, ethical, caring and culturally sensitive health care delivery strategies that meet current and future health care delivery system needs.
3. Integrate patient care technologies to evaluate complex health care questions in specific practice settings, populations or systems.
4. Integrate theoretical frameworks to guide the development and evaluation of health care delivery strategies.

5. Implement evidence and evaluate outcomes for the improvement of health in specific practice settings, populations or systems throughout Colorado and beyond.
6. Act as a health care policy advocate in Colorado and beyond.

## Nursing (PhD)

### Contact Info

Office location: Education II North, Room 3255  
 Mailing address: 13120 East 19th Avenue, 3rd Floor  
 Aurora, CO 80045  
 Phone number: 303-724-1812  
 Web Page: <https://nursing.cuanschutz.edu/>  
 Email: [Nursing.admissions@ucdenver.edu](mailto:Nursing.admissions@ucdenver.edu)

### Become a Nurse Scientist and Earn Your PhD

CU Nursing provides one of the nation's top Ph.D. in Nursing programs, with innovative programming, exceptional faculty, and unique resources on the Anschutz Medical Campus. In two to three years, you can complete a Doctor of Philosophy Ph.D. in Nursing as a culmination of your education. This doctorate opens the doors of academia and research so that you can become a professor, researcher, scientist or healthcare analyst. In this program, nurse scholars will advance the art, science and practice of the discipline.

Most of your coursework is taught online. Once per semester, students are also required to come to our Denver metro area campus for a week-long residency in the fall, spring and summer. This is the heart of our doctorate program because it gives you a chance to get to know your colleagues and develop your research skills.

The Ph.D. program includes 42 credits of coursework and 18 credits of dissertation. Students must also select a focus:

- Biobehavioral Sciences
- Caring Science
- Health Care Systems Research

The MS-PhD program prepares baccalaureate-prepared nurses to enter the doctor of philosophy program, which is designed to promote knowledge development for reflective, theory-based and research-guided nursing practice, after completion of a master's program focusing on a specialty nursing area.

For further information about the PhD Program in Nursing, please visit: [https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)) ([https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)/](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)/)).

#### Nursing PhD Admission Requirements

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For updated admissions requirements for the PhD Program in Nursing, please visit: <https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/phd-admissions> (<https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/phd-admissions/>).

Applications are submitted through Nursing's Centralized Application Service (NursingCAS (<https://nursingcas2021.liaisoncas.com/applicant-ux/#/login>)).

### Doctor of Philosophy (PhD) in Nursing

Our blended program provides each student with three different tracks. You may choose the research track that matches your professional and research goals. As a newly admitted student, you will be paired with a faculty advisor from your chosen area who will help you acclimate to the PhD environment, accomplish each requirement of the degree, and develop the research question that will be the foundation of your dissertation. Once per semester (Fall, Spring, and Summer), you will come to the Anschutz Medical Campus in the Denver metro area for a week-long residency. This will provide you with rich opportunities to get to know your colleagues and faculty and benefit from the collective knowledge you all bring to in-person conversations.

Our three tracks include:

#### Biobehavioral Sciences

When studying biobehavioral sciences, you seek to understand the connections between patients' physical health and things like lifestyle, behavior, environment, and genetics. Biobehavioral scientists seek to improve patient care by understanding these connections and effectively educating patients on the ways their actions and decisions can impact their health.

#### Caring Science

In the Caring Science track, you will research how the complexities of health care career impact nurses and health professionals. The principles of caring science are founded on the idea that being a professional caregiver requires paying attention to the self, not just the patient, and that a holistic approach to nursing can improve patient outcomes and provider mental health.

#### Health Care Systems Research

This track provides you with the foundation you need to research health care systems. For example, our students have researched health outcomes related to hospital staffing best practices and how to optimize management skills of head nurses. This track is particularly unique to CU Anschutz. We are the only university in the West providing this kind of focus, and one of only four programs like this in the entire nation.

For further information about the PhD Program in Nursing, please visit: [https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)) ([https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)/](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)/)).

#### Curriculum

The PhD program includes 42 credits of coursework and 18 credits of dissertation. All students must take the core courses in addition to selecting a focus in health care systems, caring science or biobehavioral science.



Please visit: [\(https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)\)](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)) ([https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-\(phd\)/](https://nursing.cuanschutz.edu/academics/graduate-programs/masters-dnp-phd/doctor-of-philosophy-(phd)/)) for further information regarding plans of study.

## Expected PhD Program Outcomes

1. Create new knowledge through the research process.
2. Demonstrates commitment to the profession through publications and conference presentations or engagement in professional organizations.
3. Examines multiple theories and methodologies for application to research problems.
4. Engages with fellow scientists and students in scholarly discourse.
5. Demonstrates ethical responsibility and action as a scientist.
6. Considers research findings relevant to public health and healthcare policy.

# Colorado School of Public Health

## Contact Information

**Email:** [Colorado.SPH@cuanschutz.edu](mailto:Colorado.SPH@cuanschutz.edu)

**Phone:** 303.724.4585

**Address:**

CU Anschutz Medical Campus  
13001 East 17th Place  
Fitzsimons Building, 3rd Floor, C3000  
Mail Stop B119  
Aurora, CO 80045

## Office of Admissions & Student Affairs

**Email:** [ColoradoSPH.Admissions@cuanschutz.edu](mailto:ColoradoSPH.Admissions@cuanschutz.edu)

([coloradosph.admissions@cuanschutz.edu](mailto:coloradosph.admissions@cuanschutz.edu))

[ColoradoSPH.StudentAffairs@cuanschutz.edu](mailto:ColoradoSPH.StudentAffairs@cuanschutz.edu)

**Address:**

CU Anschutz Medical Campus  
13001 East 17th Place  
Fitzsimons Building, 3rd Floor, E3360  
Mail Stop B119  
Aurora, CO 80045

**Website:** <http://publichealth.ucdenver.edu>

## Overview

The Colorado School of Public Health is a collaborative school of public health with the University of Colorado, Colorado State University, and the University of Northern Colorado. It is the first school of public health in a nine-state region of the Rocky Mountain West. Emerging infectious diseases, chronic diseases, emergencies, lifestyles, the environment, disparities and various other factors impact the health of our communities. The Colorado School of Public Health aims to meet the challenges that our communities face by preparing a public health work force with the skills, research, knowledge, and values necessary to advance the health of our communities. The combined faculty, located at the three partner institutions, is at the forefront of various health issues and research, proactively addressing and improving the lives of our children, adults and aging populations. As part of the commitment to meeting the training and research needs of the public health workforce, the Colorado School of Public Health offers educational programs

that include masters, doctoral, residency, and certificate programs. Descriptions and materials are available through the Colorado School of Public Health website.

## An identity of collaboration

To stand at the forefront of a changing world, you will need the passion and identity of a collaborator and innovator. At the Colorado School of Public Health we hold both. As an accredited, collaborative school of public health, we stand ready to create healthier futures, build stronger partnerships and steward shared resources for the betterment and health of communities in Colorado and around the world.

As a collaboration of the University of Colorado (<https://www.ucdenver.edu/anschutz/Pages/landing.aspx>), Colorado State University (<http://www.colostate.edu/>) and the University of Northern Colorado (<http://www.unco.edu/>), we are redefining the identity of public health to be an identity of collaboration.

Across Colorado you'll find our research teams in schools working hand in hand with teachers to improve the health of local youth; our students learning firsthand about disaster response and emergency preparedness, worker safety, and more; and our staff at local nonprofits working to advance our mission of health in the classroom and community.

## Our mission

To promote the physical, mental, social, and environmental health of people and communities in the Rocky Mountain Region, across our nation, and globally. The mission will be accomplished through collaborations in education, population-based research, and community service that bring together institutions, agencies, and diverse populations.

## Our vision

The Colorado School of Public Health will become one of the nation's premier institutions for public health education and research, with top recognition for its work in selected areas and an outstanding reputation for delivering education, training, and service programs that are based in science, proven in practice, and adapted through creativity to meet pressing population health needs.

Review our strategic plan and process (<https://coloradosph.cuanschutz.edu/about-us/strategic-planning/>).

## Our commitment to diversity and health equity

Our Inclusion, Diversity, and Health Equity mission is to build a diverse and representative academic community which recognizes the importance of social and economic justice in relation to health. ColoradoSPH is committed to working to build an inclusive, culturally competent institution which includes the environment, policies and procedures, faculty, staff, leadership, and student body.

Read our Plan for Dismantling Structural Racism & Advancing Inclusive Excellence ([https://www.ucdenver.edu/docs/librariesprovider151/default-document-library/coloradosph-draft-plan-for-dismantling-structural-racism-and-advancing-inclusive-excellence-7-17-20.pdf?sfvrsn=84dfc2b9\\_2](https://www.ucdenver.edu/docs/librariesprovider151/default-document-library/coloradosph-draft-plan-for-dismantling-structural-racism-and-advancing-inclusive-excellence-7-17-20.pdf?sfvrsn=84dfc2b9_2)).

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- Public Health Certificates (p. 118)
- Public Health Dual Degree Programs (MPH) (p. 122)
- Public Health: Doctor of Philosophy (PhD) programs (p. 129)
  - Biostatistics (PhD) (p. 129)
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- Public Health: Doctor of Public Health (DrPH) (p. 130)
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  - Epidemiology (MS) (p. 133)
  - Health Services Research, Policy, & Administration (MS) (p. 133)

## Public Health (MPH)

You can get your Master of Public Health (MPH) degree at any of our three collaborating institutions. Each campus offers areas of study that leverage the unique strengths of that university. All three of our campuses are home to world-class experts, opportunities to get hands-on with what matters to you, and the chance to get out there and take advantage of everything Colorado has to offer. Inside and outside of the classroom, you can choose your adventure at the Colorado School of Public Health.

The 42-45 credit hour MPH program is designed to be completed in two years and must be finished within five years. As part of your degree, you'll complete a practicum and capstone project, so you'll graduate with skills you learned by doing, not just sitting in a classroom.

## Applied Biostatistics

### Applied Biostatistics

In this program, you'll focus more on the applied nature of biostatistics and less on the theory behind it. It's perfect for public health workers and individuals who want to strengthen their analytic skills and is particularly useful if you have a previous research degree or experience. As a student in this program, you'll gain a strong understanding of programming and data management and learn how to navigate serving as a consultant on projects. And if your interests are bigger than what just one country can contain, we offer the option to add an emphasis in global health.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Applied Biostatistics Courses (12 credits)</b>		

BIOS 6602	Applied Biostatistics II	3
BIOS 6623	Advanced Data Analysis	3
BIOS 6680	Data Management Using SAS	3
Choose a minimum of 3 credits from the following courses:		
BIOS 6310	Practical Clinical Research Informatics	3
BIOS 6621	Statistical Consulting I	1
BIOS 6622	Statistical Consulting II	1
BIOS 6628	Latent Variable Methods	3
BIOS 6629	Applied Survival and Longitudinal Data Analysis	3
BIOS 6640	R for Data Science	2
BIOS 6641	Causal Inference	3
BIOS 6642	Introduction to Python Programming	3
BIOS 6644	Practical Data Wrangling	2
BIOS 6648	Design and Conduct of Clinical Research	3
BIOS 6685	Introduction to Public Health Informatics	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
BIOS 6990	MPH Capstone Preparation - BIOS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>45</b>

## Applied Biostatistics + Global Health

The MPH in Applied Biostatistics + Global Health is a 45-credit-hour program that's designed to provide you with a public health perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges. As part of the MPH program, students are required to complete the core program curriculum including practicum and capstone projects. Capstone projects should incorporate applied biostatistics and a global component.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Applied Biostatistics Courses (12 credits)</b>		
BIOS 6602	Applied Biostatistics II	3
BIOS 6623	Advanced Data Analysis	3
BIOS 6680	Data Management Using SAS	3
Choose a minimum of 3 credits from the following courses:		
BIOS 6310	Practical Clinical Research Informatics	3
BIOS 6621	Statistical Consulting I	1
BIOS 6622	Statistical Consulting II	1
BIOS 6628	Latent Variable Methods	3
BIOS 6629	Applied Survival and Longitudinal Data Analysis	3
BIOS 6640	R for Data Science	2

BIOS 6641	Causal Inference	3
BIOS 6642	Introduction to Python Programming	3
BIOS 6644	Practical Data Wrangling	2
BIOS 6648	Design and Conduct of Clinical Research	3
BIOS 6685	Introduction to Public Health Informatics	3
<b>Required Global Public Health Courses (4 credits)</b>		
CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1
<b>Electives (8 credits)</b>		<b>8</b>
<b>Biostatistics Global Public Health Electives (3-5 credits) See Faculty Advisor</b>		
<b>Global Public Health Electives from this Approved List (3-5 credits):</b>		
CBHS 6622	Qualitative Research Methods	3
CBHS 6628	Tech-based health Promotion	3
CBHS 6629	Health and Human Rights	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6627	Water Quality and Public Health	3
EHOH 6633	International Travel and Health	1
EHOH 6635	Climate Change and Health	3
EHOH 6641	Critical Policies in Global Health Engagement	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6647	CU Denver in India: Global Health in the Heart of India	3
EPID 6649	Vaccine Science, Application and Policy	2
HSMP 6602	Health Equity	3
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
ANTP 5450	Global Mental Health - Theory and Method	4
ANTP 5710	Anthropology and Global Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
IEOO 6790	Advanced International Development	3
PSCY 5150	Women's Health	3

**Practicum (2 credits)**

PUBH 6606	MPH Practicum	2
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**Capstone (2 credits)**

BIOS 6990	MPH Capstone Preparation - BIOS	1
PUBH 6991	MPH Capstone Integration	1

<b>Total Hours</b>	<b>48</b>
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## Community & Behavioral Health

### Community & Behavioral Health

As a student in this program, you'll learn how you can influence individuals to make positive health decisions, while strengthening communities. In the Department of Community & Behavioral Health, we study the why and the how of population health, engaging with communities in a way that really makes a difference. As part of our department, you'll have access to faculty with a wide range of expertise—from adverse childhood experiences, to nutrition, to underserved populations.

This 42- to 45-credit hour program offers both in-classroom and applied learning experiences. Our curriculum prepares you to engage authentically and work collaboratively with communities. You'll gain a strong understanding of the social, cultural, political, economic, and environmental factors that influence health. And if your interests are bigger than one country can contain, we offer the option to add an emphasis in global public health, where you'll learn how to apply community health and behavioral health principles in the global arena.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6611	Foundations of Health Behavior	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Community &amp; Behavioral Health Courses (12 credits)</b>		
CBHS 6612	Methods in Research and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
CBHS 6624	Community Health Assessment	3
Choose 1 of the following 2 options:		
CBHS 6622	Qualitative Research Methods	3
CBHS 6637	Applied Quantitative Analysis for Comm Hlth Science	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

### Community & Behavioral Health + Global Health

The MPH in Community & Behavioral Health + Global Health is a 45-credit-hour program that's designed to provide you with a public health

perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
CBHS 6611	Foundations of Health Behavior	3
EHOH 6614	Occupational and Environmental Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Community &amp; Behavioral Health Courses (12 credits)</b>		
CBHS 6612	Methods in Research and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
CBHS 6624	Community Health Assessment	3
Choose 1 of the following 2 courses:		
CBHS 6622	Qualitative Research Methods	3
CBHS 6637	Applied Quantitative Analysis for Comm Hlth Science	3
<b>Required Global Public Health Courses (4 credits)</b>		
CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1
<b>Electives (8 total credits)</b>		
<b>Community &amp; Behavioral Health Global Electives from the following (3-5 credits):</b>		
CBHS 6628	Tech-based health Promotion	3
CBHS 6629	Health and Human Rights	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
<b>Global Public Health Electives from this Approved List (3-5 credits):</b>		
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6627	Water Quality and Public Health	3
EHOH 6633	International Travel and Health	1
EHOH 6635	Climate Change and Health	3
EHOH 6641	Critical Policies in Global Health Engagement	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2

EPID 6647	CU Denver in India:Global Health in the Heart of India	3
EPID 6649	Vaccine Science, Application and Policy	2
HSMP 6602	Health Equity	3
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
ANTP 5450	Global Mental Health - Theory and Method	4
ANTP 5710	Anthropology and Global Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
IEOO 6790	Advanced International Development	3
PSCY 5150	Women's Health	3
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>45</b>

## Environmental & Occupational Health

### Environmental & Occupational Health

As a student in this program, you'll learn how to characterize the human health effects of environmental and occupational hazards and the populations that are most vulnerable to those exposures. In the Department of Environmental & Occupational Health, we think about the ways that public health professionals can intervene to improve the environment where people live, work, and play. As part of our department, you'll have access to faculty with a wide range of expertise—from climate change and disaster preparedness to oil and gas activity to Total Worker Health®.

This 42- to 45-credit hour program offers both in-classroom and applied learning experiences. Our curriculum prepares you to address emerging issues by thinking across boundaries to come up with complex solutions. You'll also learn how to involve communities in addressing unequal distribution of hazards and advocating for justice, cleanliness, and safety. And if your interests are bigger than one country can contain, we offer the option to add an emphasis in global public health, where you'll learn how to apply environmental and occupational health principles in the global arena.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Environmental &amp; Occupational Health Courses (12 credits)</b>		



EHOH 6618	Environmental Health Policy and Practice	3
EHOH 6619	Environmental Exposures and Health Effects	3
Choose 2 of the following 7 options:		
EHOH 6616	Environmental & Occupational Toxicology	3
EHOH 6617	Environmental & Occupational Epidemiology	3
EHOH 6620	Risk Analysis & Decision Making	3
EHOH 6628	Health Protection/Promotion in the Workplace.	3
EHOH 6635	Climate Change and Health	3
EHOH 6636	Occupational Safety and Ergonomics with Journal Clubs	3
EHOH 6638	Communication Skills for Public Health Impact	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EHOH 6990	MPH Capstone Preparation - EHOH	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

## Environmental & Occupational Health + Global Health

The MPH in Environmental & Occupational Health + Global Health is a 45-credit-hour program that's designed to provide you with a public health perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges.

### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Environmental &amp; Occupational Health Courses (12 credits)</b>		
EHOH 6618	Environmental Health Policy and Practice	3
EHOH 6619	Environmental Exposures and Health Effects	3
Choose 2 of the following 7 courses:		
EHOH 6616	Environmental & Occupational Toxicology	3
EHOH 6617	Environmental & Occupational Epidemiology	3
EHOH 6620	Risk Analysis & Decision Making	3
EHOH 6628	Health Protection/Promotion in the Workplace.	3
EHOH 6635	Climate Change and Health	3
EHOH 6636	Occupational Safety and Ergonomics with Journal Clubs	3
EHOH 6638	Communication Skills for Public Health Impact	3
<b>Required Global Public Health Courses (4 credits)</b>		
CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1
<b>Electives (8 total credits)</b>		<b>8</b>

**Environmental & Occupational Global Public Health Electives from the following courses (3-5 credits):**

EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6627	Water Quality and Public Health	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
<b>Global Public Health Electives from this Approved List (3-5 credits):</b>		
CBHS 6622	Qualitative Research Methods	3
CBHS 6628	Tech-based health Promotion	3
CBHS 6629	Health and Human Rights	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
EHOH 6633	International Travel and Health	1
EHOH 6641	Critical Policies in Global Health Engagement	3
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6647	CU Denver in India: Global Health in the Heart of India	3
EPID 6649	Vaccine Science, Application and Policy	2
HSMP 6602	Health Equity	3
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
ANTP 5450	Global Mental Health - Theory and Method	4
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
IEOO 6790	Advanced International Development	3
PSCY 5150	Women's Health	3
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EHOH 6990	MPH Capstone Preparation - EHOH	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>45</b>

## Epidemiology

### Epidemiology

In this program, you'll study diseases in populations and learn how to apply evidence-based information to promote health and prevent illness. In epidemiology, we get to see the applications of our work every day, saving lives in the here and now and in the future. And as a student in our

department, you'll have access to faculty with a wide range of expertise—from food safety, to diabetes, to gene-environment interactions, we do it all.

This 42- to 45-credit hour program offers both in-classroom and applied learning experiences. In addition to the public health core areas, you'll take classes in biostatistics, research methods, and database design. You'll also choose from a variety of elective courses so that you can hone in on what matters most to you. And if your interests are bigger than one country can contain, we offer the option to add an emphasis in global public health, where you'll learn how to apply epidemiological principles in the global arena.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Epidemiology Courses (12 credits)</b>		
BIOS 6602	Applied Biostatistics II	3
BIOS 6680	Data Management Using SAS	3
EPID 6626	Research Methods in Epidemiology	3
EPID 6631	Analytical Epidemiology	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

## Epidemiology + Global Public Health

The MPH in Epidemiology + Global Public Health is a 45-credit-hour program that's designed to provide you with a public health perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Epidemiology Courses (12 credits)</b>		
BIOS 6602	Applied Biostatistics II	3
BIOS 6680	Data Management Using SAS	3
EPID 6626	Research Methods in Epidemiology	3

EPID 6631	Analytical Epidemiology	3
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#### Required Global Public Health Courses (4 credits)

CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1

#### Electives (8 total credits)

##### Epidemiology Global Public Health Electives (3-5 credits from the following courses):

EPID 6622	Cancer Prevention and Control	2
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6644	Maternal Child Health Epidemiology	3
EPID 6647	CU Denver in India: Global Health in the Heart of India	3
EPID 6649	Vaccine Science, Application and Policy	2

##### Global Public Health Electives (3-5 credits from this approved list):

CBHS 6622	Qualitative Research Methods	3
CBHS 6628	Tech-based health Promotion	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6627	Water Quality and Public Health	3
EHOH 6633	International Travel and Health	1
EHOH 6635	Climate Change and Health	3
EHOH 6641	Critical Policies in Global Health Engagement	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
HSMP 6602	Health Equity	3
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
ANTP 5710	Anthropology and Global Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
IEOO 6790	Advanced International Development	3
PSCY 5150	Women's Health	3
VSCS 5330	Epidemiologic Infections Disease/Zoonosis	3

#### Practicum (2 credits)

PUBH 6606	MPH Practicum	2
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#### Capstone (2 credits)

EPID 6990	MPH Capstone Preparation - EPID	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>45</b>

## Health Systems, Management & Policy

### Health Systems, Management & Policy

As a student in this program, you'll learn about the entire breadth of the healthcare arena and what it looks like on the scale of national policies, regional hospitals, and individual patient outcomes. We're not just talking about health care, we're talking about health systems. In the Department of Health Systems, Management & Policy, you'll have access to faculty with a wide range of expertise—from disaster preparedness to rural populations to the economic impact of health policies, we do it all.

This 42- to 45-credit hour program offers both in-classroom and applied learning experiences. Our curriculum prepares you to make sense of data, apply them to healthcare solutions decisions, and advocate for evidence-based policies. You'll gain a strong understanding of healthcare delivery and financing, as well as policy implementation. You'll also learn how to be a leader and manage resources in a rapidly changing healthcare landscape. And if your interests are bigger than the U.S. healthcare system, we offer the option to add an emphasis in global public health, where you'll learn how to apply health systems and policy principles in the global arena.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (14 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
PUBH 6600	Foundations in Public Health	2
<b>Required Health Systems, Management &amp; Policy Courses (19 credits)</b>		
HSMP 6602	Health Equity	3
HSMP 6604	Health Care Economics	3
HSMP 6605	Health Policy	3
HSMP 6609	Cost Benefit and Effectiveness in Health	2
HSMP 6610	Health Care Financial Management	3
HSMP 6616	Intro. to Health Policy Analysis and Communication	1
HSMP 6617	Interpreting Health Policy and Management Research	2
Choose one of the following courses:		
HSMP 6606	Public Health Administration	2
HSMP 6633	Management of Non-Profit Organizations in Public Health	2
<b>Electives (5 credits)</b>		<b>5</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
HSMP 6990	MPH Capstone Preparation - HSMP	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

## Health Systems, Management & Policy + Global Health

The MPH in Health Systems, Management & Policy + Global Health is a 45-credit-hour program that's designed to provide you with a public health perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (14 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
PUBH 6600	Foundations in Public Health	2
<b>Required Health Systems, Management &amp; Policy Courses (19 credits)</b>		
HSMP 6602	Health Equity	3
HSMP 6604	Health Care Economics	3
HSMP 6605	Health Policy	3
HSMP 6609	Cost Benefit and Effectiveness in Health	2
HSMP 6610	Health Care Financial Management	3
HSMP 6616	Intro. to Health Policy Analysis and Communication	1
HSMP 6617	Interpreting Health Policy and Management Research	2
Choose 1 of the following 2 courses:		
HSMP 6606	Public Health Administration	2
HSMP 6633	Management of Non-Profit Organizations in Public Health	2
<b>Required Global Public Health Courses (4 credits)</b>		
CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1
<b>Required HSMP Global Public Health Courses (4 credits)</b>		
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
HSMP 6990	MPH Capstone Preparation - HSMP	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>45</b>

## Maternal & Child Health

### Maternal & Child Health

As a student in this program, you'll learn how to define public health needs related to maternal and child health, design strategies to address those needs, and evaluate the effectiveness of different policies and programs. Our faculty and students are passionate about working with diverse populations to improve the health of mothers, children, and families. You'll have access to faculty with a wide range of expertise—from reproductive health, to child development, to intimate partner violence.

This 42- to 45-credit hour program offers both in-classroom and applied learning experiences. Our curriculum provides training in maternal

and child health policy, program management and evaluation, and the application of research methods to maternal and child health issues. And if your interests are bigger than one country can contain, we offer the option to add an emphasis in global public health, where you'll learn how to apply public health principles to address maternal and child health in the global arena.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (18 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
BIOS 6603	Statistical Computing - SAS	1
<b>Required Maternal &amp; Child Health Courses (12 credits)</b>		
CBHS 6621	Introduction to Maternal and Child Health	3
HSMP 6614	MCH Program Management & Policy Analysis	3
EPID 6644	Maternal Child Health Epidemiology	3
CBHS 6612	Methods in Research and Evaluation	3
<b>Electives (8 total credits)</b>		
<b>MCH Methods/Skills Electives (choose 3 credits from the following courses):</b>		
CBHS 6613	Program Planning and Implementation	3
CBHS 6620	Survey Research	3
CBHS 6622	Qualitative Research Methods	3
CBHS 6624	Community Health Assessment	3
CBHS 6628	Tech-based health Promotion	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EPID 6624	Public Health Surveillance	2
EPID 6626	Research Methods in Epidemiology	3
EPID 6629	Clinical Epidemiology	2
EPID 6631	Analytical Epidemiology	3
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
HDFS 6070	Prevention Science Across the Life-span	3
HSMP 6616	Intro. to Health Policy Analysis and Communication	1
CLSC 6663	Intervention for Individuals with Developmental Disabilities	3
CLSC 6668	Screening/Assessment for Children/Youth with Autism/Neurodevelopmental Disabilities	3
<b>MCH Topics Electives (choose 3 credits from the following courses):</b>		
CBHS 6614	Childhood Obesity	1
CBHS 6616	Intimate Partner Violence: Epidemiology	1
CBHS 6617	Nutrition and Public Health	1
CBHS 6618	CURRENT RESEARCH AM INDIAN ALASKA NAT CHILD HEALTH DEV	1
CBHS 6619	Public Health in the Global Community	3

CBHS 6625	Current Regional Issues in Maternal & Child Health	1
CBHS 6627	Maternal Nutrition	1
CBHS 6629	Health and Human Rights	3
CBHS 6631	Introduction to Sexual and Reproductive Health	1
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
CBHS 6634	Adolescent Health	1
CBHS 6635	Child Nutrition	1
CBHS 6636	Early Childhood Hlth, ACEs, Toxic Stress, Hlth Equity	1
CBHS 6643	Women's Health: A Public Health Perspective	2
CHBH 5250	Contemporary Issues in School Health	3
EPID 6628	Global Health and Disasters	2
EPID 6637	Injury and Violence Epidemiology and Prevention	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6642	Genetics in Public Health	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
ANTP 5450	Global Mental Health - Theory and Method	4
HDFS 6100	Risk and Resilience	3
HDFS 6120	Adolescent Development	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
PSCY 5150	Women's Health	3
CLSC 6653	Key Concepts in Neurodevelopmental Disabilities I	2
CLSC 6654	Key Concepts in Neurodevelopmental Disabilities II	2
<b>General Electives (2 credits)</b>		
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>40</b>

## Maternal & Child Health + Global Health

The MPH in Maternal & Child Health + Global Health is a 45-credit-hour program that's designed to provide you with a public health perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (18 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
BIOS 6603	Statistical Computing - SAS	1



**Required Maternal & Child Health Courses (12 credits)**

CBHS 6621	Introduction to Maternal and Child Health	3
HSMP 6614	MCH Program Management & Policy Analysis	3
EPID 6644	Maternal Child Health Epidemiology	3
CBHS 6612	Methods in Research and Evaluation	3

**Required Global Public Health Courses (4 credits)**

CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1

**Electives (7 total credits)** 7**MCH Global Public Health Electives (3-4 credits from the following courses):**

CBHS 6618	CURRENT RESEARCH AM INDIAN ALASKA NAT CHILD HEALTH DEV	1
CBHS 6628	Tech-based health Promotion	3
CBHS 6629	Health and Human Rights	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
PSCY 5150	Women's Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2

**Global Public Health Electives (3-4 credits from this approved list):**

CBHS 6622	Qualitative Research Methods	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6627	Water Quality and Public Health	3
EHOH 6633	International Travel and Health	1
EHOH 6635	Climate Change and Health	3
EHOH 6641	Critical Policies in Global Health Engagement	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6647	CU Denver in India: Global Health in the Heart of India	3
EPID 6649	Vaccine Science, Application and Policy	2
HSMP 6602	Health Equity	3
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5450	Global Mental Health - Theory and Method	4

ANTP 5710	Anthropology and Global Health	3
IEOO 6790	Advanced International Development	3
VSCS 5330	Epidemiologic Infections Disease/Zoonosis	3

**Practicum (2 credits)**

PUBH 6606	MPH Practicum	2
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**Capstone (2 credits)**

CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1

**Total Hours** 45

## Population Mental Health & Wellbeing

This program is among the first and only accredited Master of Public Health programs in the U.S. focused on population mental health. You can complete this program entirely online or at the University of Colorado Anschutz Medical Campus. In this program, you'll gain a strong foundation in the principles and theories of public health practice, with the specialized knowledge needed to practice public health in the areas of mental health, substance use, and wellbeing. You'll join a community of people who are dedicated to lessening the burden that mental health and substance use disorders have on the health of individuals, families, and communities. In addition, you'll have access to faculty with a wide range of expertise—from autism spectrum disorders, to cannabis use, to suicide.

This 42-credit hour program offers both in-classroom and applied learning experiences. The program is ideal for public health professionals seeking to expand their expertise to mental health and well-being promotion, service providers who seek a population-level perspective, or those looking to launch a career in this exciting new field.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Population Mental Health &amp; Wellbeing Courses (12 credits)</b>		
CBHS 6612	Methods in Research and Evaluation	3
PMHW 6601	Mental Health	3
PMHW 6620	Mental Health Systems and Policy	3
PMHW 6621	Mental Health and Wellbeing Promotion	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

## Animals, People & the Environment

Throughout the world, human societies are inextricably linked with animals wild and domestic – for food, work, or companionship. While

some health professionals focus solely on health in humans, public health is hugely impacted by interactions between animals, people, and their environment.

The 42 credit hour Master of Public Health degree with a concentration in Animals, People, and the Environment at Colorado State University has unique, internationally recognized programs to provide both classroom and practical education opportunities in this important area of public health.

This concentration prepares graduates for a variety of careers in national, state, and local public health agencies including a variety of governmental and non-governmental agencies, health care agencies, and academia. These include both domestic and international opportunities. The focus is on the diseases shared between wildlife, domestic animals, and humans — ensuring our environment is safe for all.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required Animals, People &amp; Environment Courses (14 credits)</b>		
PBHC 5400	One Health in Public Health	3
<b>Food Safety Requirement (2 credits from the following courses):</b>		
ANEQ 5670	HAACP Meat Safety	2
VSCS 6480	Food Animal Production and Food Safety	2
FTEC 5740	Current Issues in Food Safety	2
<b>Health Communication Requirement (3 credits from the following courses):</b>		
JTCM 6300	Health Communication	3
JTCM 6140	Public Communication Campaigns	3
AGRI 5470	Delivery of Co-operative Extension Programs	4
CBHS 6628	Tech-based health Promotion	3
EHOH 6638	Communication Skills for Public Health Impact	3
<b>APE Electives (6 credits from the following courses):</b>		
AGRI 5000	Advanced Issues in Agriculture	3
AGRI 5460	Principles of Cooperative Extension	3
ANEQ 6760	Molecular Approach to Food Safety	3
ERHS 5380	Geographic Information Systems and Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6400	Select Topics in Nutritional Epidemiology	2
FTEC 5720	Food Biotechnology	2
FWLD 5440	Ecotoxicology	3
JTCM 6700	Social Processes of Risk	3
MIPO 5550	Principles and Mechanisms of Disease	3
PBHC 6300	Field Methods of Disease Investigation	3
PBHC 6920	Public Health Seminar - APE	1-6
PBHC 6950	CSU Public Health Independent Study	1-3
POLS 6650	Public Policy Analysis	3
POLS 6700	Politics of the Environment and Sustainability	3

PSCY 5170	Perspectives in Global Health	3
SOCO 5620	Sociology of Food Systems and Agriculture	3
VSCS 5330	Epidemiologic Infections Disease/Zoonosis	3
EPID 6640	Investigation of Disease Outbreaks	2
VM 637 (3) for MPH/DVM students only		3
VM 707 (1) for MPH/DVM students only		1
VM 714 (4) for MPH/DVM students only		4
<b>General Electives (7 credits)</b>		<b>7</b>
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Epidemiology

Expand public understanding of health risks and provide data for preventive approaches in public health as an epidemiologist. Through surveillance, data collection, exposure assessment, and the implementation and evaluation of intervention programs, epidemiologists are needed to determine disease risk and preventative factors to then evaluate disease prevention strategies. If you're interested in being a part of the cornerstone of public health research, epidemiology is the profession for you.

In the Colorado School of Public Health's 42 credit hour Master of Public Health degree program, with a concentration in Epidemiology at Colorado State University, you'll be trained in epidemiologic study designs, outbreak investigations, statistical analysis and the biological principles underlying infectious and chronic diseases. Epidemiology students utilize their training to conduct epidemiologic research studies by collecting, analyzing and interpreting data that are used to develop evidencebased practices.

With an MPH in epidemiology, you can work in a wide variety of settings, including international health agencies, government health departments, academia, industry and research institutions. CSU faculty are actively involved in the following areas: environmental and occupational, cancer, chronic disease, infectious disease, genetic/ molecular and veterinary epidemiology.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required Epidemiology Courses (12 credits)</b>		
PBHC 5340	Public Health Data Management Using SAS	3
BIOS 6602	Applied Biostatistics II	3
PBHC 5750	Epidemiological Research for Public Health	3
ERHS 6400	CSU Advanced Epidemiology	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		

PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Global Health & Health Disparities

Globalization has changed the way that governments and nongovernmental organizations tackle challenging health issues like HIV/AIDS prevention, the spread of communicable diseases, malnutrition, the diabetes epidemic and access to basic medical care.

The 42 credit hour Master of Public Health program concentration in Global Health and Health Disparities at Colorado State University, is built upon the school's core public health curriculum with the addition of faculty expertise in the social, economic and cultural components of health and health disparities.

Reducing the high rate of morbidity and mortality suffered by the poor will require focusing on interventions that can achieve the greatest improvement in health. This concentration is designed for students who intend to study, identify, and solve public health problems locally and globally.

### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required Global Health &amp; Health Disparities Courses (15 credits)</b>		
PSCY 5170	Perspectives in Global Health	3
<b>Program Planning and Evaluation Requirement (3 credits from the following courses):</b>		
HESC 6500	Health Promotion Program	3
HDFS 6080	Program Design and Implementation	3
CHBH 6100	Program Planning and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
HDFS 6090	Prevention Program Evaluation	3
CBHS 6612	Methods in Research and Evaluation	3
CHBH 6150	Methods in Public Health Research and Evaluation	3
FSHN 6200	Community Nutrition Plan and Evaluation	3
<b>Health Communication Requirement (3 credits from the following courses):</b>		
JTCM 6300	Health Communication	3
JTCM 6140	Public Communication Campaigns	3
AGRI 5470	Delivery of Co-operative Extension Programs	4
CBHS 6628	Tech-based health Promotion	3
EHOH 6638	Communication Skills for Public Health Impact	3
<b>Global Health &amp; Health Disparities Electives (6 credits from the following courses):</b>		
ANTP 5050	Resilience, Well-Being and Social Justice	3
ANTP 5200	Women Health & Culture	3

ANTP 5320	Culture of Disaster	3
ANTP 5380	Food, Hunger and Culture	3
ANTP 5400	Medical Anthropology	3
ANTP 5710	Anthropology and Global Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
HDFS 5920	Grant Writing: Human Services	3
HDFS 6100	Risk and Resilience	3
IEOO 6790	Advanced International Development	3
JTCM 6600	Communication and Innovation	3
JTCM 6700	Social Processes of Risk	3
PBHC 6922	Public Health Seminar - GHHD	1-6
PBHC 6950	CSU Public Health Independent Study	1-3
POLS 6650	Public Policy Analysis	3
PSCY 5150	Women's Health	3
SOWK 5300	Anti-Oppressive Social Work Practice	3
VSCS 5330	Epidemiologic Infections Disease/Zoonosis	3
VSCS 6480	Food Animal Production and Food Safety	2
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6629	Health and Human Rights	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EHOH 6623	Geographic Perspective on Global Health	1
EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6635	Climate Change and Health	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6644	Maternal Child Health Epidemiology	3
EPID 6628	Global Health and Disasters	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6633	Management of Non-Profit Organizations in Public Health	2
PMHW 6601	Mental Health	3
VM 707 (1) for MPH/DVM students only		1
VM 714 (4) for MPH/DVM students only		4
<b>General Electives (6 credits)</b>		<b>6</b>
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Health Communication

The 42 credit hour Master of Public Health program concentration in Health Communication at Colorado State University, prepares the future public health professional to employ scientifically-based communication strategies in an effort to improve health on both the individual and community level. Effective communication is a necessary element in all domains of health care.

According to the U.S. Department of Health and Human Services, health communication is especially critical in eight contexts:

1. Health professional-patient relations.
2. Individuals' exposure to, search for, and use of health information.
3. Individuals' adherence to clinical recommendations and regimens.
4. The construction of public health messages and campaigns.
5. The dissemination of individual and population health risk information (risk communication).
6. Images of health in the mass media and the culture at large.
7. The education of consumers about how to gain access to the public health and health care systems.
8. The development of telehealth applications.

Learn to create effective communication campaigns and prevent disease, promote health, influence health policies and enhance the quality of life of individuals within local and global communities. Be the voice for public health.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required Health Communication Courses (9 credits)</b>		
JTCM 6300	Health Communication	3
SPCM 5380	Relating and Organizing for Health	3
JTCM 6140	Public Communication Campaigns	3
<b>Health Communication Electives (3 credits from the following courses):</b>		
JTCM 5010	Process and Effects of Communication	4
JTCM 6500	Strategic Communication Management	3
JTCM 6600	Communication and Innovation	3
JTCM 6700	Social Processes of Risk	3
PBHC 6923	Public Health Seminar - HCOM	1-6
PBHC 6950	CSU Public Health Independent Study	1-3
SPCM 6320	Theory of Interpersonal Communication	3
SPCM 6390	Communication Theory	3
CHBH 5050	Health Communications and the Media	3
CBHS 6628	Tech-based health Promotion	3
EHOH 6638	Communication Skills for Public Health Impact	3
<b>General Electives (9 credits)</b>		
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Physical Activity & Healthy Lifestyles

Leaders who understand the physiological and public health implications of lifestyle choices, including physical activity and nutrition, are needed to help battle obesity, diabetes, mental health, and other chronic diseases.

The 42 credit hour Master of Public Health program concentration in Physical Activity and Healthy Lifestyles at Colorado State University, prepares graduates for a variety of careers striving to increase the number of people who adopt healthy lifestyle choices. These careers are in state and local health departments, federal agencies, parks and recreation departments, non-profit and community health organizations, worksites and schools.

In the Physical Activity and Healthy Lifestyles concentration, students can choose from a range of classes on topics related to physical activity, nutritional sciences, exercise science, epidemiology, and health promotion planning.

#### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required Physical Activity &amp; Healthy Lifestyles Courses (15 credits)</b>		
PBHC 6440	Physical Activity and Public Health	3
<b>Program Planning and Evaluation Requirement (3 credits from the following courses):</b>		
HESC 6500	Health Promotion Program	3
HDFS 6080	Program Design and Implementation	3
CHBH 6100	Program Planning and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
HDFS 6090	Prevention Program Evaluation	3
CBHS 6612	Methods in Research and Evaluation	3
CHBH 6150	Methods in Public Health Research and Evaluation	3
FSHN 6200	Community Nutrition Plan and Evaluation	3
<b>Health Communication Requirement (3 credits from the following courses):</b>		
JTCM 6300	Health Communication	3
JTCM 6140	Public Communication Campaigns	3
CBHS 6628	Tech-based health Promotion	3
EHOH 6638	Communication Skills for Public Health Impact	3
<b>Physical Activity &amp; Healthy Lifestyles Electives (6 credits from the following courses):</b>		
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 5200	Advance Medical Nutrition Therapy	3
FSHN 5250	Nutrition Education, Theory and Practice	2
FSHN 6400	Select Topics in Nutritional Epidemiology	2
FSHN 6501	Human Nutrition: Carbohydrates, Lipids and Energy	2
FSHN 6502	Recent Developments in Human Nutrition - Genomics	2



FSHN 6600	Women's Issues in Lifecycle: Nutrition	2
HESC 6450	Epidemiology of Health and Physical Activity	3
JTCM 6700	Social Processes of Risk	3
HDFS 5920	Grant Writing: Human Services	3
PBHC 6924	Public Health Seminar - PAHL	1-6
PBHC 6950	CSU Public Health Independent Study	1-3
PSCY 6000	Health Psychology	3
CHBH 5250	Contemporary Issues in School Health	3
CHBH 5330	Physical Activity Interventions in the Community	3
CBHS 6614	Childhood Obesity	1
<b>General Electives (6 credits)</b>		<b>6</b>
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Public Health Nutrition

**Poor dietary patterns are the leading causes of chronic disease worldwide.** Promoting better nutrition in the population requires approaches informed by the nutrition, social, behavioral, and health sciences; local knowledge and experience; and best practices for designing, implementing, and evaluating nutrition policies and programs.

The 42-credit Public Health Nutrition concentration prepares you to apply the science of nutrition and epidemiological principles to programs and policy, systems, and environmental approaches that promote healthy dietary behaviors. You will also have the opportunity to take electives that allow you to further tailor your education in areas like nutrition and sustainable food systems, and nutrition and physical activity for chronic disease prevention. The Public Health Nutrition concentration is housed at the Colorado State University (CSU) campus of the Colorado School of Public Health. CSU is a land grant institution with an active interdisciplinary team of food systems scholars and a strong history of chronic disease prevention in Colorado, the US, and globally.

You will come away with an understanding of:

- how the under- and over-consumption of macronutrients and micronutrients can lead to poor health outcomes;
- how to critically review the nutrition literature, analyze nutrition and health data, and assess dietary intake;
- and how to apply planning and evaluation strategies to nutrition programs that focus on addressing the social determinants of health and food systems issues.

Examples of career paths that you could pursue after completing this program include designing nutrition campaigns or programs for communities; working with non-profits to improve access to healthy foods; working in local, state, or federal government to evaluate and monitor nutrition programs; and working with international non-governmental organizations to inform the development of food and nutrition policies abroad.

### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2

PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required Public Health Nutrition Courses (16 credits)</b>		
FSHN 5300	Principles of Nutrition Science and Metabolism	3
FSHN 6200	Community Nutrition Plan and Evaluation	3
FSHN 6400	Select Topics in Nutritional Epidemiology	2
<b>Health Communication Requirement (3 credits from the following courses):</b>		
JTCM 6300	Health Communication	3
JTCM 6140	Public Communication Campaigns	3
CBHS 6628	Tech-based health Promotion	3
EHOH 6638	Communication Skills for Public Health Impact	3

<b>Public Health Nutrition Electives (5 credits from the following courses):</b>		
PBHC 6440	Physical Activity and Public Health	3
FSHN 5250	Nutrition Education, Theory and Practice	2
FSHN 6600	Women's Issues in Lifecycle: Nutrition	2
FSHN 5000	Food Systems, Nutrition and Food Security	2
FTEC 5740	Current Issues in Food Safety	2
FSHN 6610	International Nutrition	2
ANTP 5380	Food, Hunger and Culture	3
AGRI 5000	Advanced Issues in Agriculture	3
<b>General Electives (5 credits)</b>		<b>5</b>
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Community Health Education

In this program, you'll learn how to plan, implement, and evaluate programs that promote the health of individuals and communities. You'll have access to faculty who are making a mark in the community, getting out there and doing. Our faculty and students are passionate about working with diverse populations to improve health. And because this is an evening program, it's a great fit for working professionals looking to advance their education while maintaining a day job.

### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
CHBH 5090	Behavior Change Theories	3
CHBH 5500	Environmental Health	3
CHBH 6120	Statistical Applications in Public Health	3
CHBH 6200	UNC Epidemiology	3
CHBH 6350	Policy, Advocacy, Leadership & Management in Community Health	3
PUBH 6600	Foundations in Public Health	2
<b>Required Community Health Education Courses (12 credits)</b>		
CHBH 5300	Strategies for Community Health Promotion	3
CHBH 5350	Effective Community Health Engagement	3

CHBH 6100	Program Planning and Evaluation	3
Choose 1 of the following 3 courses:		
CHBH 6150	Methods in Public Health Research and Evaluation	3
HRSS 6100	Interpretation and Evaluation of Behavioral Research	3
SRMS 6000	Introduction to Graduate Research	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
CHBH 6930	Master of Public Health Practicum	2
<b>Capstone (2 credits)</b>		
CHBH 6860	Master of Public Health Capstone Project	2
<b>Total Hours</b>		<b>42</b>

## Community Health Education + Global Health

The MPH in Community Health Education + Global Health is a 45-credit-hour program that's designed to provide you with a public health perspective of globalization and global health issues. As a student in this program, you'll gain the skills you need to apply public health methods to address global challenges.

### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
CHBH 5090	Behavior Change Theories	3
CHBH 5500	Environmental Health	3
CHBH 6120	Statistical Applications in Public Health	3
CHBH 6200	UNC Epidemiology	3
CHBH 6350	Policy, Advocacy, Leadership & Management in Community Health	3
PUBH 6600	Foundations in Public Health	2
<b>Required Community Health Education Courses (12 credits)</b>		
CHBH 5300	Strategies for Community Health Promotion	3
CHBH 5350	Effective Community Health Engagement	3
CHBH 6100	Program Planning and Evaluation	3
Choose 1 of the following 3 courses:		
CHBH 6150	Methods in Public Health Research and Evaluation	3
HRSS 6100	Interpretation and Evaluation of Behavioral Research	3
SRMS 6000	Introduction to Graduate Research	3
<b>Required Global Public Health Courses (4 credits)</b>		
CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1
<b>Electives (8 total credits)</b>		<b>8</b>
<b>Community Health Education Global Public Health Electives (3-5 credits from the following courses):</b>		
CBHS 6622	Qualitative Research Methods	3
CBHS 6628	Tech-based health Promotion	3
CBHS 6629	Health and Human Rights	3
<b>Global Public Health Electives (3-5 credits from this Approved List of Courses):</b>		
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3

EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6627	Water Quality and Public Health	3
EHOH 6633	International Travel and Health	1
EHOH 6635	Climate Change and Health	3
EHOH 6641	Critical Policies in Global Health Engagement	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6647	CU Denver in India: Global Health in the Heart of India	3
EPID 6649	Vaccine Science, Application and Policy	2
HSMP 6602	Health Equity	3
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5200	Women Health & Culture	3
ANTP 5320	Culture of Disaster	3
ANTP 5400	Medical Anthropology	3
ANTP 5450	Global Mental Health - Theory and Method	4
ANTP 5710	Anthropology and Global Health	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
FSHN 6610	International Nutrition	2
IEOO 6790	Advanced International Development	3
PSCY 5150	Women's Health	3
<b>Practicum (2 credits)</b>		
CHBH 6930	Master of Public Health Practicum	2
<b>Capstone (2 credits)</b>		
CHBH 6860	Master of Public Health Capstone Project	2
<b>Total Hours</b>		<b>45</b>

## Leadership & Public Health Practice

As a student in this online program, you'll gain the skills needed to take the next step in your career and ground your work in the foundations of public health. We offer all of the required courses online—in both asynchronous and synchronous formats. We don't run on a cohort model so you can adjust your coursework on a semester-by-semester basis to accommodate your work or personal schedule.

This 42-credit hour program includes practice-based learning experiences. With courses in all five core areas of public health, ranging from biostatistics to health policy, you'll learn the fundamentals of the discipline. You'll also gain the management, budgeting, evaluation, and public health administration experience you need to become an effective leader and manager, and you'll tailor your coursework to your passions with nine elective credits.

Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Leadership &amp; Public Health Practice Courses (12 credits)</b>		
CBHS 6640	Leadership for Public Health Practice	3
HSMP 6640	Leadership for Public Health Practice Part 2	3
CBHS 6612	Methods in Research and Evaluation	3
HSMP 6634	Management, Budgeting and Public Health Administration	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

Population Mental Health & Wellbeing

This program is among the first and only accredited Master of Public Health programs in the U.S. focused on population mental health. You can complete this program entirely online or at the University of Colorado Anschutz Medical Campus. In this program, you'll gain a strong foundation in the principles and theories of public health practice, with the specialized knowledge needed to practice public health in the areas of mental health, substance use, and wellbeing. You'll join a community of people who are dedicated to lessening the burden that mental health and substance use disorders have on the health of individuals, families, and communities. In addition, you'll have access to faculty with a wide range of expertise—from autism spectrum disorders, to cannabis use, to suicide.

Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Population Mental Health &amp; Wellbeing Courses (12 credits)</b>		
PMHW 6601	Mental Health	3
PMHW 6620	Mental Health Systems and Policy	3
PMHW 6621	Mental Health and Wellbeing Promotion	3
CBHS 6612	Methods in Research and Evaluation	3
<b>Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2

<b>Capstone (2 credits)</b>		
CBHS 6990	MPH Capstone Preparation - CBHS	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

Public Health Certificates

The following certificates are available through the Colorado School of Public Health at the CU Anschutz Medical Campus in Aurora, Colorado:

Applied Biostatistics

This certificate, offered at the University of Colorado Anschutz Medical Campus, provides graduate training in applied biostatistics for health care professionals and others interested in expanding their analytic knowledge and skills. This 15-credit certificate will provide you with skills in basic data management, biostatistics, and data analysis with applications in a wide range of clinical and public health areas. Upon completion, you'll be ready to meet the increasing demand for biostatistical expertise in the workforce.

Curriculum

Code	Title	Hours
<b>Required Courses (6 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
BIOS 6602	Applied Biostatistics II	3
<b>Computing Electives (3 credits from the following courses):</b>		
BIOS 6640	R for Data Science	2
BIOS 6642	Introduction to Python Programming	3
BIOS 6680	Data Management Using SAS	3
BIOS 6681	Structured Query Language Using SAS PROC SQL	1
<b>Biostatistics Electives (6 credits from the following courses):</b>		
BIOS 6623	Advanced Data Analysis	3
BIOS 6641	Causal Inference	3
BIOS 6629	Applied Survival and Longitudinal Data Analysis	3
BIOS 6685	Introduction to Public Health Informatics	3
EPID 6630	Epidemiology	3
<b>Total Hours</b>		<b>15</b>

Global Public Health

This certificate program, offered at the University of Colorado Anschutz Medical Campus, will help you address the health challenges that have arisen with increasing globalization. As the world becomes more interconnected, governments and non-governmental organizations have changed the ways they tackle health issues like HIV/AIDS, communicable diseases, malnutrition, diabetes, and access to medical care. In this program, you'll learn how to address global health disparities on community and systems levels.

Curriculum

Code	Title	Hours
<b>Required Course (10 credits)</b>		
CBHS 6619	Public Health in the Global Community	3
EHOH 6623	Geographic Perspective on Global Health	1
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3

**Electives (5 credits from the following courses):**

CBHS 6629	Health and Human Rights	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6633	International Travel and Health	1
EPID 6624	Public Health Surveillance	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
HSMP 6602	Health Equity	3
HSMP 6615	Current Global Health Policy Issues	2

**Total Hours** 15

## Health Analytics & Data Science

This certificate, offered at the University of Colorado Anschutz Medical Campus, provides graduate training in analytic methods and data science for healthcare professionals and researchers. In this program, you'll learn about analytic methods for large and complex data in areas like 'omics, imaging, electronic health records, and mobile health. When you leave this program, you'll be ready to answer complex clinical questions by using data to display and communicate healthcare trends.

### Curriculum

Code	Title	Hours
<b>Required Analytics and Computing Courses (5-6 credits)</b>		
BIOS 6602	Applied Biostatistics II	3
or BIOS 6611	Biostatistical Methods I	
BIOS 6640	R for Data Science	2-3
or BIOS 6642	Introduction to Python Programming	
<b>Analytics Electives (3 credits from the following courses):</b>		
BIOS 6612	Biostatistical Methods II	3
BIOS 6623	Advanced Data Analysis	3
BIOS 6641	Causal Inference	3
BIOS 6645	Predictive Analytics	3
BSBT 6111	Introduction to Biomedical Data Practices	2
CSCI 5930	Machine Learning	3
CSCI 5931	Deep Learning	3
CSCI 5580	Data Science	3
CSCI 7952	Big Data Science	3
MATH 6388	Statistical and Machine Learning	3
<b>Computing Electives (3 credits from the following courses):</b>		
BIOS 6680	Data Management Using SAS	3
BIOS 6640	R for Data Science	2
BIOS 6642	Introduction to Python Programming	3
BIOS 6644	Practical Data Wrangling	2
CPBS 7630	Computational Methods for Data Challenges in Biomed	3
CSCI 5559	Database Systems	3
CSCI 5951	Big Data Systems	3
<b>Optional Specialty Electives (3-4 credits in the following areas):</b>		
Genomics		

## Health Informatics

Imaging Analysis
Health Services Research
Mobile Health
<b>Total Hours</b> 20

## Latino Health

This certificate, offered at the University of Colorado Anschutz Medical Campus, is designed to develop the talent pipeline of individuals who can make a difference in the Latino community. In this program, you'll gain a theoretical framework for addressing health disparities in the Latino community, guidance from highly successful mentors, and the opportunity to be involved in relevant experiential learning projects.

### Curriculum

Code	Title	Hours
<b>Required Courses (9 credits)</b>		
CBHS 6645	Latino Health (Taken in both Fall and Spring semesters, 2 credits each semester)	4
CBHS 6610	Social and Behavioral Factors and Health	3
or CBHS 6611	Foundations of Health Behavior	
PUBH 6600	Foundations in Public Health	2
<b>Electives (6 credits from the following courses):</b>		
CBHS 6612	Methods in Research and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
CBHS 6615	Health Literacy & Public Health	2
CBHS 6624	Community Health Assessment	3
CBHS 6632	Public Health in the Caribbean and Latin America	3
EHOH 6621	GIS for Public Health Research/Practice	3
EPID 6630	Epidemiology	3
HSMP 6601	Introduction to HSMP	3
HSMP 6602	Health Equity	3
HSMP 6605	Health Policy	3
CHBH 5350	Effective Community Health Engagement	3
CHBH 6100	Program Planning and Evaluation	3
CHBH 6150	Methods in Public Health Research and Evaluation	3
<b>Total Hours</b>		15

## Public Health Preparedness & Disaster Response

You can complete this program entirely online, take your classes at the University of Colorado Anschutz Medical Campus, or do a mix of both. In this program, you'll learn how to promote the health of communities threatened by natural hazards, incidents of mass violence, civil conflict, infectious disease outbreaks, and other emergent public health threats. This interdisciplinary certificate focuses on training the leaders of tomorrow to help domestic and international communities prepare for, respond to, and recover from disasters. In addition, you'll get hands-on experience through table-top and field simulation exercises.

### Curriculum

Code	Title	Hours
<b>Required Courses (12 credits)</b>		
EHOH 6622	Intro to Public Health Emergency Preparedness	3



EHOH 6625	International Disasters and Global Humanitarianism	3
EHOH 6626	Public Health Emergency and Disaster Responder	3
EHOH 6642	Disaster Mental Health: International and Domestic	3
or EHOH 6645	Research Methods: Climate, Disaster, Humanitarian	
<b>Electives (3 credits from the following courses):</b>		
CBHS 6619	Public Health in the Global Community	3
CBHS 6624	Community Health Assessment	3
CBHS 6629	Health and Human Rights	3
EHOH 6620	Risk Analysis & Decision Making	3
EHOH 6621	GIS for Public Health Research/Practice	3
EHOH 6623	Geographic Perspective on Global Health	1
EHOH 6624	Infectious Diseases, Environmental Contexts	3
EHOH 6633	International Travel and Health	1
EHOH 6635	Climate Change and Health	3
EHOH 6638	Communication Skills for Public Health Impact	3
EPID 6624	Public Health Surveillance	2
EPID 6628	Global Health and Disasters	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6640	Investigation of Disease Outbreaks	2
HSMP 6608	Ethical and Legal Issues in Public Health	2
HSMP 6615	Current Global Health Policy Issues	2
HSMP 6618	Comparative Health Systems	2
ANTP 5320	Culture of Disaster	3
ANTP 5380	Food, Hunger and Culture	3
FSHN 5000	Food Systems, Nutrition and Food Security	2
IEOO 6790	Advanced International Development	3
<b>Total Hours</b>		<b>15</b>

## Population Mental Health & Wellbeing

This certificate, offered at the University of Colorado Anschutz Medical Campus, will help you to understand the challenges of preventing and treating mental health and substance use conditions to promote mental well-being at a population level. You'll be introduced to innovative, population-minded approaches to behavioral health issues and be trained in epidemiology, health policy, social and behavioral health, and more. This certificate is ideal for public health practitioners interested in building their expertise in behavioral health issues and for members of the behavioral health workforce looking for a population-based perspective.

### Curriculum

Code	Title	Hours
<b>Required Courses 12 credits)</b>		
PMHW 6601	Mental Health	3
PMHW 6620	Mental Health Systems and Policy	3
CBHS 6610	Social and Behavioral Factors and Health	3
EPID 6630	Epidemiology	3
<b>Electives (3 credits from the following courses):</b>		
Content Focused Electives		
CBHS 6616	Intimate Partner Violence: Epidemiology	1
CBHS 6621	Introduction to Maternal and Child Health	3

CBHS 6629	Health and Human Rights	3
CBHS 6634	Adolescent Health	1
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EPID 6637	Injury and Violence Epidemiology and Prevention	2
ANTP 5450	Global Mental Health - Theory and Method	4
HDFS 6120	Adolescent Development	3
PSCY 6000	Health Psychology	3
Methods Focused Electives		
BIOS 6602	Applied Biostatistics II	3
BIOS 6648	Design and Conduct of Clinical Research	3
CBHS 6612	Methods in Research and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
HSMP 6602	Health Equity	3
HDFS 6080	Program Design and Implementation	3
HDFS 6090	Prevention Program Evaluation	3
CHBH 6100	Program Planning and Evaluation	3
CHBH 6150	Methods in Public Health Research and Evaluation	3
<b>Total Hours</b>		<b>18</b>

## Public Health Sciences

Public health is a profession that connects numerous disciplines in pursuit of healthier and safer communities. Whatever field you're currently in, consider enriching your professional background through this certificate, which is designed for students who don't yet have formal education in public health. You can enroll in this certificate at any of our three university locations—CU Anschutz Medical Campus (<https://coloradosph.cuanschutz.edu/education/locations/cu-anschutz-medical-campus/>), Colorado State University (<https://coloradosph.cuanschutz.edu/education/locations/csu/>), or the University of Northern Colorado (<https://coloradosph.cuanschutz.edu/education/locations/unc/>). And if you fall in love with public health while you're studying with us, you can follow up on your certificate with an application to one of our Master of Public Health programs (<https://coloradosph.cuanschutz.edu/education/degrees-and-programs/master-of-public-health/>).

### Curriculum

Code	Title	Hours
<b>Required Courses (8 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
PUBH 6600	Foundations in Public Health	2
<b>Electives (7 credits)</b>		<b>7</b>
<b>Total Hours</b>		<b>15</b>

The following certificates are available through the Colorado School of Public Health at **Colorado State University in Fort Collins, Colorado**:

## Public Health Sciences

Public health is a profession that connects numerous disciplines in pursuit of healthier and safer communities. Whatever field you're currently in, consider enriching your professional background through this certificate, which is designed for students who don't yet have formal education in public health. You can enroll in this certificate at any of our three university locations—CU Anschutz Medical Campus (<https://coloradosph.cuanschutz.edu/education/locations/cu-anschutz-medical-campus/>), Colorado State University (<https://coloradosph.cuanschutz.edu/education/locations/csu/>), or the University of Northern Colorado (<https://coloradosph.cuanschutz.edu/education/locations/unc/>).

anschutz-medical-campus/), Colorado State University (<https://coloradosph.cuanschutz.edu/education/locations/csu/>), or the University of Northern Colorado (<https://coloradosph.cuanschutz.edu/education/locations/unc/>). And if you fall in love with public health while you're studying with us, you can follow up on your certificate with an application to one of our Master of Public Health programs (<https://coloradosph.cuanschutz.edu/education/degrees-and-programs/master-of-public-health/>).

#### Curriculum

Code	Title	Hours
<b>Required Courses (8 credits)</b>		
PBHC 5600	Quantitative Methods in Public Health	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5160	Public Health Foundations	2
<b>Electives (7 credits)</b>		<b>7</b>
<b>Total Hours</b>		<b>15</b>

The following certificates are available through the Colorado School of Public Health at the **University of Northern Colorado** in **Greeley, Colorado**:

## Public Health Sciences

Public health is a profession that connects numerous disciplines in pursuit of healthier and safer communities. Whatever field you're currently in, consider enriching your professional background through this certificate, which is designed for students who don't yet have formal education in public health. You can enroll in this certificate at any of our three university locations - CU Anschutz Medical Campus, Colorado State University, or the University of Northern Colorado. And if you fall in love with public health while you're studying with us, you can follow up on your certificate with an application to one of our Master of Public Health programs.

#### Curriculum

Code	Title	Hours
<b>Required Courses (8 credits)</b>		
CHBH 6120	Statistical Applications in Public Health	3
CHBH 6200	UNC Epidemiology	3
PUBH 6600	Foundations in Public Health	2
<b>Electives (7 credits)</b>		<b>7</b>
<b>Total Hours</b>		<b>15</b>

## Rural Public Health

This certificate, offered primarily at the University of Northern Colorado with many electives at Colorado State University, is designed to help meet the need for talented public health professionals in rural communities. In this program, you'll learn about health disparities that affect rural populations, gain an understanding of effective community engagement strategies, and learn how to access and address community health needs.

#### Curriculum

Code	Title	Hours
PUBH 6600	Foundations in Public Health	2
CHBH 5350	Effective Community Health Engagement	3
CHBH 5300	Strategies for Community Health Promotion	3
CHBH 5680	Rural Community Health Issues	3

<b>Electives (4 credits from the following courses)</b>		<b>4</b>
CBHS 6624	Community Health Assessment	3
AGRI 5460	Principles of Cooperative Extension	3
AGRI 5470	Delivery of Co-operative Extension Programs	4
FSHN 6200	Community Nutrition Plan and Evaluation	3
FTEC 5740	Current Issues in Food Safety	2
HDFS 6100	Risk and Resilience	3
JTCM 6300	Health Communication	3
PBHC 5400	One Health in Public Health	3
PBHC 6921	Public Health Seminar - EPI	2
<b>Total Hours</b>		<b>15</b>

The following certificates are available through the Colorado School of Public Health via **Online** instruction:

## Maternal & Child Health

In this online certificate program, you'll learn about evidence-based approaches to improve the health, safety, and well-being of women, children, and families. This certificate provides the options that you need to customize your learning with both high-level views of maternal and child health (MCH) and deep dives into specific topics like MCH nutrition issues or MCH epidemiologic methods.

#### Curriculum

Code	Title	Hours
<b>Required Courses (5 credits)</b>		
PUBH 6600	Foundations in Public Health	2
CBHS 6621	Introduction to Maternal and Child Health	3
<b>MCH Electives (10 credits from the following courses):</b>		
BIOS 6601	Applied Biostatistics I	3
CBHS 6612	Methods in Research and Evaluation	3
CBHS 6613	Program Planning and Implementation	3
CBHS 6614	Childhood Obesity	1
CBHS 6616	Intimate Partner Violence: Epidemiology	1
CBHS 6617	Nutrition and Public Health	1
CBHS 6618	CURRENT RESEARCH AM INDIAN ALASKA NAT CHILD HEALTH DEV	1
CBHS 6619	Public Health in the Global Community	3
CBHS 6625	Current Regional Issues in Maternal & Child Health	1
CBHS 6627	Maternal Nutrition	1
CBHS 6628	Tech-based health Promotion	3
CBHS 6629	Health and Human Rights	3
CBHS 6631	Introduction to Sexual and Reproductive Health	1
CBHS 6632	Public Health in the Caribbean and Latin America	3
CBHS 6633	Intensive Study of Public Health Services in Cuba	3
CBHS 6634	Adolescent Health	1
CBHS 6635	Child Nutrition	1
CBHS 6636	Early Childhood Hlth, ACEs, Toxic Stress, Hlth Equity	1
CBHS 6641	Developmental Screening, Strategies and Referral	1
CBHS 6643	Women's Health: A Public Health Perspective	2
EPID 6630	Epidemiology	3
EPID 6637	Injury and Violence Epidemiology and Prevention	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2

EPID 6642	Genetics in Public Health	2
EPID 6644	Maternal Child Health Epidemiology	3
HSMP 6614	MCH Program Management & Policy Analysis	3
HDFS 6100	Risk and Resilience	3
HDFS 6120	Adolescent Development	3
PSCY 5150	Women's Health	3
CHBH 5250	Contemporary Issues in School Health	3
CHBH 5750	Public Health Issues in Reproductive Health	3
CHBH 6100	Program Planning and Evaluation	3
CHBH 6150	Methods in Public Health Research and Evaluation	3
CLSC 6663	Intervention for Individuals with Developmental Disabilities	3
CLSC 6668	Screening/Assessment for Children/Youth with Autism/Neurodevelopmental Disabilities	3

**Total Hours** 15

## Total Worker Health<sup>®</sup>

This online program is designed for public health graduate students and current working professionals who are seeking career advancement. In this program, you'll learn how to develop and manage Total Worker Health (TWH) initiatives—workplace safety, wellness, and health promotion programs. You'll learn how to assess organizational culture, plan and evaluate health and safety programs, and become a better leader. In addition, you'll take classes taught by expert faculty from the Center for Health, Work & Environment (<https://coloradosph.cuanschutz.edu/research-and-practice/centers-programs/chwe/home/>)—one of six Centers of Excellence for TWH. With this certificate, you'll become part of a community of business leaders and academics committed to workplace health and safety.

According to the National Institute for Occupational Safety and Health (NIOSH) (<https://www.cdc.gov/niosh/twh/default.html>), TWH includes policies, programs, and practices that integrate protection from work-related safety and health hazards with the promotion of injury and illness prevention efforts to advance worker well-being.

### Curriculum

Code	Title	Hours
<b>Required Courses (15 credits)</b>		
EHOH 6628	Health Protection/Promotion in the Workplace.	3
EHOH 6634	Spec Professions Protecting/Promoting Worker Health	1
EHOH 6639	Occupational Health Psychology	3
EHOH 6614	Occupational and Environmental Health	3
EHOH 6629	Introduction to Occupational Safety and Ergonomics	2
EHOH 6638	Communication Skills for Public Health Impact	3
<b>Total Hours</b>		<b>15</b>

## Public Health Dual Degree Programs (MPH)

If you're looking to complete two degrees at once to gain the skills you need to work interdisciplinarily across healthcare and public health settings, a dual degree may be the right fit for you. Since public health interacts with many other professions, joining a dual degree program is

a perfect opportunity to learn the breadth of public health in combination with another discipline that you're passionate about.

We offer Master of Public Health programs in collaboration with other University of Colorado, Colorado State University, and University of Denver programs. Admissions requirements vary by degree, so please be sure to check the individual program pages for additional information.

This dual degree is offered by the University of Colorado School of Medicine and the Colorado School of Public Health on the CU Anschutz Medical Campus. In addition to receiving a Doctor of Medicine (MD) degree, students concurrently receive the Master of Public Health (MPH) degree in a concentration of their choice: Applied Biostatistics; Community & Behavioral Health; Environmental & Occupational Health; Epidemiology; Health Systems, Management & Policy; Maternal and Child Health; or a custom concentration. **Only students already in or accepted into the University of Colorado MD program are eligible to apply.**

Up to nine credits hours from the MD program will count toward completion of the 42-credit hour MPH. In order to help students select courses and successfully complete the dual degree, students are assigned faculty advisors from both the School of Medicine and ColoradoSPH.

Students pursue the MPH between years three and four of their medical education. The program requires an official leave of absence from the CU School of Medicine. Leave lasts three consecutive semesters (summer, fall, and spring). During this official leave, medical school loan obligations are waived. Students are assessed public health tuition rates for ColoradoSPH courses taken in the completion of the dual degree.

### Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required Public Health Concentration Courses (12 credits)</b>		<b>12</b>
<b>Public Health Electives from the Approved School of Medicine Courses Below (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID (or appropriate Capstone Preparation course for concentration)	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

### Approved School of Medicine Courses for Public Health Electives

Medical school credits are calculated differently than MPH credits. Each medical school credit is equivalent to 0.54 MPH credit. Medical school credits are thus counted towards the MPH with this conversion, so an MD/MPH student would need 17 eligible medical school credits in order to fulfill 9 MPH credits.

The following medical school courses have been approved:

Code	Title	Hours
EMED 8010	Climate Change and Medicine	4
FMMD 6624	Intro to Homeless Healthcare	1
IDPT 6004	Infectious Disease	4.5
IDPT 6613	Culinary Medicine Elective	1
IDPT 6623	Refugee and Immigrant Health I	1
IDPT 6637	LEADS 1	2
IDPT 6669	Global Health Seminar	1
IDPT 6671	Urban Underserved Care	1
IDPT 6672	Urban Underserved Care 2	1
IDPT 8023	Refugee Health II	4-8
IDPT 8027	Race in Medicine	4
IDPT 8040	Physician as Healthcare Improver	2
IDPT 8041	Quality Improvement Practicum	4-8
IDPT 8540	DH-LIC Capstone Social Medicine	4
IDPT 8640	DHLIC Longitudinal Scholarship	4-8
MEDS 6050	Mission Medical Clinic Colorado Springs	2
MEDS 8015	Care for the Under-served	8
MEDS 8039	AIDS and American Culture	4
PEDS 8030	Vaccination in Pediatrics	8
PRMD 8006	Dir Study Ethics/Humanities	4-24
PSYM 6632	Denver CARES Elective	1
PSYM 6633	SUD in Medical Practice	1

Scholars in the Doctor of Nurse Practice, Masters of Public Health (DNP/ MPH) dual-degree program concurrently earn a DNP from the University of Colorado's College of Nursing and a Masters of Public Health from the Colorado School of Public Health. Electives allow students to tailor studies to their interests. Graduates of this program are prepared to meet the growing trend of multiple chronic conditions emerging earlier in patients.

As stand-alone programs, the MPH is 42 credits and the DNP is 43 credits. Both degrees are awarded for a total of 61 credits between the two programs. The MPH accepts up to 6 credits from DNP coursework to count towards elective credits as well as NURS 8020 DNP Project Preparation to fulfill the practicum and NURS 8030 DNP Project I to fulfill the MPH Capstone course.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PUBH 6600	Foundations in Public Health	2
BIOS 6601	Applied Biostatistics I	3
CBHS 6610	Social and Behavioral Factors and Health	3
EHOH 6614	Occupational and Environmental Health	3
EPID 6630	Epidemiology	3
HSMP 6601	Introduction to HSMP	3
<b>Required Public Health DNP/MPH Courses (11 credits)</b>		
CBHS 6612	Methods in Research and Evaluation	3
EHOH 6622	Intro to Public Health Emergency Preparedness	3
EPID 6640	Investigation of Disease Outbreaks	2
HSMP 6634	Management, Budgeting and Public Health Administration	3

## Public Health Electives (4 credits) 4

<b>College of Nursing Courses Approved as Public Health Electives (6 credits from the following courses):</b>		
NURS 6109	Evidence-Based Practice: Evaluating Evidence	3
NURS 6286	Foundations Informatics	3
NURS 6633	Advanced Public Health Nursing	3
NURS 6800	Leadership, Financial Management and Innovation	3
<b>DNP Practicum Course for MPH Practicum (2 credits)</b>		
NURS 8020	DNP Project Preparation	1
<b>DNP Capstone Course for MPH Capstone (2 credits)</b>		
NURS 8030	DNP Project I	4
<b>Total Hours</b>		<b>42</b>

The role of the pharmacist continues to expand and pharmacists are now an integral part of the healthcare team. The PharmD/MPH degree is in response to that expanding role. It is offered in partnership with the Colorado School of Public Health.

University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences entry-level PharmD students are welcome to apply to pursue a Master of Public Health (MPH) degree in addition to their PharmD degree. A student **can apply in the second (P2) or fourth (P4) year** of pharmacy school. A student applying in the P2 year will take a one year leave of absence to complete coursework at the Colorado School of Public Health, and then re-enter the PharmD program as a P3 student. A student applying in the P4 year will engage in coursework for their MPH after completing their PharmD degree.

In the application process, a student will select an area of focus (concentration) for the MPH.

As a stand-alone program, the MPH is 42 credits. The PharmD/MPH allows PharmD students to apply 9 credits of PharmD coursework to the MPH, reducing the number of credits required within the ColoradoSPH to complete the MPH to 33.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required MPH Concentration Courses (12 credits)</b>		<b>12</b>
<b>Approved PharmD Courses as MPH Electives (9 credits)</b>		
PHRD 5065	Patient-Centered Communication 1	3
PHRD 6065	Evidence-based Medicine & Literature Evaluation	3
PHRD 7045	Public Health & Health Outcomes 2	3
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID (or appropriate Capstone Preparation course for concentration)	1



PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

The CU School of Dental Medicine and the Colorado School of Public Health have joined together to offer dental students the unique opportunity to earn their Doctor of Dental Surgery (DDS) and Masters of Public Health (MPH) degrees.

The MPH program requires 42 credits to be completed. Students can select any of the 23 concentrations across three campuses: University of Colorado Anschutz Medical Campus, University of Northern Colorado, Greeley and Colorado State University, Fort Collins. If students select the Leadership and Public Health Practice concentration all coursework can be completed online. Students can also create a custom concentration that reflects their unique interests in public health. Nine pre-approved credits of DDS coursework will be applied towards the MPH program. This will reduce the total credits for the MPH to 33 credits.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required MPH Concentration Courses (12 credits)</b>		<b>12</b>
<b>Approved DDS Courses for MPH Electives (9 credits from the following courses):</b>		<b>9</b>
DSCD 5503	Person Centered Care	0.1-5
DSCD 7730	Dentistry for Adults with Special Health Care Needs	0.1-5
DISP 7360	Behavioral Health, Gerontology and Geriatrics	0.1-5
DSCD 5501	Community Public Health 1	0.1-5
DSRE 7706	Critical Appraisal of Translational Literature	0.1-5
DSCD 7705	Clinical Transformations: Interprofessional Education	0.1-5
DSCD 7706	Clinical Transformations: Interprofessional Education	1-5
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID (or appropriate Capstone Preparation course for concentration)	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

The School of Public Affairs and the Colorado School of Public Health jointly sponsor this dual-degree program, which enables you to take the core of both programs, and choose electives that simultaneously count toward both programs and that suit your career and personal goals.

Students may choose one of many MPH concentrations including: Applied Biostatistics; Epidemiology; Environmental & Occupational Health; Community & Behavioral Health; Health Systems, Management &

Policy; or Maternal & Child Health; among others. Dual degree students also have the option to complete a custom concentration.

As stand-alone programs, the MPH is 42 credits and the MPA is 39 credits. Both degrees are awarded for a total of 60 credits between the two programs. The MPH program accepts up to 9 credits from MPA coursework to count towards elective credits, and the MPH accepts up to 12 MPH credits as electives.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required MPH Concentration Courses (12 credits)</b>		<b>12</b>
<b>MPA Courses Approved as MPH Electives (9 credits from the following approved courses):</b>		
PUAD 5002	Organizational Management and Behavior	3
PUAD 5004	Economics and Public Finance	3
PUAD 5006	Public Service Leadership and Ethics	3
PUAD 5310	Principles of Policy Design	3
PUAD 5650	Public Service in Emergency Management and Homeland Security	3
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID (or appropriate Capstone Preparation course for concentration)	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

The MSW/MPH program is offered through Colorado State University and the Colorado School of Public Health. The MSW/MPH provides an integrated approach to preventing, addressing, and solving global health and behavioral health problems, which includes individuals' physical health conditions and the behavioral and social ecological determinants of health.

The program has a strong commitment to social justice, the elimination of health, behavioral health, and care disparities, as well as a holistic definition of community and population health and well-being. The discipline draws on both social work and public health research, practice, and theoretical frameworks.

Our MSW/MPH Dual Degree Program is paired with a public health concentration of Global Health and Health Disparities. This concentration gives students a foundation and skill set for working with underserved populations and tackling issues of social justice and health equity locally and globally.

You will complete coursework leading to a Master's in Social Work and a Master's in Public Health for a total of 87 credits. The dual degree program is full-time and on-campus. We welcome students from a wide variety of undergraduate degree majors. The Advanced Standing dual degree program is available for applicants who have completed a BSW

from an accredited program in the past seven years. We make sure you have a prescribed curricular plan to follow so you know you will meet all your degree requirements.

## Curriculum

This dual degree is a set, lock-step curriculum without flexibility in course sequencing.

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
PBHL 520	Health Systems, Policy & Management (will transfer into MPH as PBHC 5200)	3
<b>Required MPH Global Health &amp; Health Disparities Concentration Courses (15 credits)</b>		
PSCY 5170	Perspectives in Global Health	3
HESC 6500	Health Promotion Program	3
Choose 1 of the following 5 courses (3 credits):		
JTCM 6140	Public Communication Campaigns	3
JTCM 6300	Health Communication	3
AGRI 5470	Delivery of Co-operative Extension Programs	4
CBHS 6628	Tech-based health Promotion	3
EHOH 6638	Communication Skills for Public Health Impact	3
MPH Global Health & Health Disparities Electives (6 credits):		
SOWK 520	Social Welfare Policy (will transfer into MPH as a GHHD elective SOWK 5200)	3
SOWK 530	Anti-Oppressive Social Work Practice (will transfer into MPH as GHHD elective SOWK 5300)	3
<b>General MPH Electives (6 credits)</b>		<b>6</b>
<b>Practicum (2 credits)</b>		
SOWK 688	Field Education (will transfer 2 credits into MPH as Practicum PBHC 6860)	8
<b>Capstone (2 credits)</b>		
SOWK 698	Advanced Research and Social Work (will transfer 2 credits into MPH as Capstone PBHC 6980)	3
<b>Total Hours</b>		<b>42</b>

The Master of Social Work (MSW) and Master of Public Health (MPH) dual degree is a collaboration between the University of Denver and the Colorado School of Public Health at the Anschutz Medical Campus. The fields of public health and social work share much in common. Both strive to improve health and social functioning, with public health focusing primarily on physical health trends and epidemiology and social work focusing primarily on social and emotional wellness and behavioral health. What can you do with an MSW/MPH dual degree? Medical and public health services, substance use prevention and treatment, and community and behavioral health are just a few of the options.

DU is on the quarter system. As stand-alone programs, the MPH is 42 semester credits and the MSW is 90 quarter credits. With the MSW/MPH dual program, students will complete 75 quarter credits at DU and 31 semester credits at ColoradoSPH. The MPH program will accept up to 12 quarter credits (equivalent to 9 semester credits) towards the elective credits that are required for the MPH degree. an additional two semester

credits are counted from the MSW program to fulfill the MPH Capstone requirement for a total of 11 semester credits from the MSW applied to the MPH.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required MPH Concentration Courses (12 credits)</b>		<b>12</b>
<b>Electives (9 credits from approved MSW Courses listed below)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
SOWK 4900	Methods for Evaluating Practice/Programs (MSW course)	2
<b>Total Hours</b>		<b>42</b>

## MSW Courses Approved as MPH Electives and Capstone

Code	Title	Hours
<b>For Two-Year MSW students:</b>		
SOWK 4006	Human Behavior and the Social Environment	3 quarter credits (2 semester)
SOWK 4020	Integrated SW Practice for Social Justice	4 quarter credits (2.67 semester)
SOWK 4120	Social Policy Analysis, Advocacy and Practice	3 quarter credits (2 semester)
SOWK 4132	Power, Privilege and Oppression	3 quarter credit (2 semester)
SOWK 4210	Evidence for Practice	3 quarter credits (2 semester)
SOWK 4325	Evolving Perspectives and Trends in Health and Wellness	3 quarter credits (2 semester)

SOWK 4900 Methods for Evaluating Practice/Programs	3 quarter credits (2 semester)
<b>For Advanced Standing MSW Students:</b>	
SOWK 4132 Power, Privilege, and Oppression	3 quarter credits (2 semester)
SOWK 4201 Evidence for Practice	3 quarter credits (2 semester)
SOWK 4325 Evolving Perspectives and Trends in Health and Wellness	3 quarter credits (2 semester)
SOWK 4370 Community and Organizational Change	3 quarter credits (2 semester)
SOWK 4670 Policy Development and Analysis	3 quarter credits (2 semester)
SOWK 4760 Resource Development and Fundraising	3 quarter credits (2 semester)
SOWK 4790 Human Sexuality	3 quarter credits (2 semester)
SOWK 4900 Methods for Evaluating Practice/Programs	3 quarter credits (2 semester)

Promote health by improving the places where people live, work, and play with a Master of Urban and Regional Planning (MURP) from CU Denver's College of Architecture and Planning and a Master of Public Health (MPH) from the Colorado School of Public Health at the CU Anschutz Medical Campus. To join this program, you must apply to each master's program separately, gain admission to each program, and then apply for the dual degree.

Students in this dual degree program may earn both degrees upon completion of 69 credits (33 in the MPH program and 36 in the MURP program). Students may choose one of many MPH concentrations including: Applied Biostatistics; Epidemiology; Environmental & Occupational Health; Community & Behavioral Health;

Health Systems, Management & Policy; or Maternal & Child Health; among others. Dual degree students also have the option to complete a custom concentration.

As stand-alone programs, the MPH is 42 credits and the MURP is 54 credits. Both degrees are awarded for a total of 69 credits between the two programs. The MPH program accepts up to 9 credits of MURP coursework to count towards elective credits, and the MURP degree accepts 18 credits from the MPH towards elective credits.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
BIOS 6601	Applied Biostatistics I	3
EPID 6630	Epidemiology	3
EHOH 6614	Occupational and Environmental Health	3
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6601	Introduction to HSMP	3
PUBH 6600	Foundations in Public Health	2
<b>Required MPH Concentration Courses (12 credits)</b>		<b>12</b>
<b>MURP Courses Approved as MPH Electives (9 credits from the approved list below)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID (or appropriate Capstone Preparation course for concentration)	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

## MURP Courses Approved as MPH Electives

Code	Title	Hours
URPL 5040	Urban Sustainability	3
URPL 6200	Land Development Regulations	3
URPL 6205	Plan Making	3
URPL 6250	GIS for Urban Planning	3
URPL 6260	Advanced Geo-Spatial Methods	3
URPL 6365	Parks and Public Spaces	3
URPL 6399	Sustainable Urban Infrastructure	3
URPL 6400	Community Development	3
URPL 6405	Urban Housing	3
URPL 6410	Social Justice in Planning	3
URPL 6500	Environmental Planning/Management	3
URPL 6555	Transportation, Land Use, and the Environment	3
URPL 6565	Pedestrian & Bicycle Planning	3
URPL 6600	Regional Growth and Equity	3
URPL 6615	Small Town, Rural, and Tourism Planning	3
URPL 6645	Disaster/ClimateChangePlanning	3
URPL 6650	International Development Planning: Theory and Practice	3

The College of Liberal Arts and Sciences (CLAS) and the Colorado School of Public Health (CSPH) together created the undergraduate Public Health program. There are two-degree undergraduate program options for

Public Health the Bachelor of Arts (BA) and the Bachelor of Science (BS) at CU-Denver.

This 5-year degree program combines the Bachelors of Art/ Bachelor of Science (BA/BS) of Public Health (PBHL) and the Master of Public Health (MPH). These degrees are offered, respectively, at the University of Colorado Denver by the Department of Health and Behavioral Sciences in the College of Liberal Arts and Sciences on the downtown campus, and the Colorado School of Public Health, a joint venture of the University of Colorado, Colorado State University and the University of Northern Colorado. The free-standing PBHL is composed of 120 credits of coursework (43 specific to the BA and 73 specific to the BS, with the remainder being part of the larger requirements for a Bachelor's degree). The free-standing MPH program is 42 credit hours and typically completed in 2 years.

The time and credit savings (i.e., 21 credits that would not have to be taken in a 6<sup>th</sup> year) is achieved as follows: (1) 6 credits from the MPH Core will count toward the PBHL Core major requirements (where the PBHL core is identical for BA and BS students); (2) 3 credits from the downtown MATH 5830 Applied Statistics course will count toward the MPH biostatistics requirement; and (3) students will complete at least 12 additional undergraduate and graduate courses concurrently, including summers. Students in the dual degree program may earn both degrees upon completion of 153 credit hours, that is, 9 credits fewer than if each degree was completed independently (120 + 42 = 162).

## Curriculum

Code	Title	Hours
<b>Required MPH Public Health Courses (17 credits)</b>		
MATH 5830	Applied Statistics (will apply to MPH requirements as BIOS 6601 Applied Biostatistics I)	3
EPID 6630	Epidemiology (can also be applied as one of two core courses for BA/BS requirements as PBHL 3001 Introduction to Epidemiology)	3
EHOH 6614	Occupational and Environmental Health (can also be applied as one of two core courses for BA/BS requirements as PBHL 3020 Introduction to Environmental Health)	3
CBHS 6610	Social and Behavioral Factors and Health (can also be applied as one of two core courses for BA/BS requirements as PBHL 4040 Social Determinants of Health)	3
HSMP 6601	Introduction to HSMP (can also be applied as one of two core courses for BA/BS requirements as PBHL 3030 Health Policy)	3
PUBH 6600	Foundations in Public Health	2
<b>Required MPH Concentration Courses (12 credits)</b>		<b>12</b>
<b>Required MPH Electives (9 credits)</b>		<b>9</b>
<b>Practicum (2 credits)</b>		
PUBH 6606	MPH Practicum	2
<b>Capstone (2 credits)</b>		
EPID 6990	MPH Capstone Preparation - EPID (or appropriate Capstone Preparation course for concentration)	1
PUBH 6991	MPH Capstone Integration	1
<b>Total Hours</b>		<b>42</b>

This BS/MPH 4 + 1 program combines the Colorado State University (CSU) Bachelor of Science (B.S.) programs in Biomedical Sciences

(environmental public health concentration), Nutrition and Food Science (dietetics concentration), Human Development and Family Studies, Health and Exercise Science (sports medicine and health promotion concentration), Psychology and Biological Sciences (biological sciences or zoology concentrations) at Colorado State University with the Masters of Public Health (MPH) in the Colorado School of Public Health (ColoradoSPH) at the CSU campus. The free-standing B.S. is composed of 120 semester credits of coursework and the MPH requires 42 semester credits. Students in the BS/MPH 4 + 1 program may earn both degrees upon completion of a total of 151 semester credits. Each degree accepts credits earned in the other degree program. The B.S. accepts 8 semester credit hours of MPH coursework, and the MPH accepts 11 graduate MPH required credit hours of coursework taken while the student is in the B.S. program.

For the first two years of admissions, BS/MPH 4 + 1 students may apply to any of the concentrations offered by the ColoradoSPH at the CSU campus. Due to logistics with undergraduate advising the addition of concentrations at the partner campuses will be considered at a later date after advising and enrollment processes have been worked out. However, since MPH students may change their campus one time after matriculating, they can go through the process of requesting to switch to a partner campus concentration once matriculated as an MPH student.

The undergraduate degrees listed above all provide a strong basis for students interested in the field of public health. The MPH is the primary professional degree in the field of public health. It prepares students for a variety of public health careers, including: epidemiology, statistical and health services research, health education, environmental health science, occupational health, health policy, health promotion, community health and administration of public health programs. MPH graduates find work in research settings, health care settings, industry, government health agencies, community-based organizations and foundations. The MPH will enhance the undergraduate degrees listed above and allow students more opportunities in the fields of public health.

## MPH Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required MPH Concentration Courses (12-15 credits)</b>		<b>12-15</b>
<b>Required MPH Electives (6-9 credits)</b>		<b>6-9</b>
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## BS in Biomedical Sciences: Concentration in Environmental Public Health

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health ((will apply to BS requirements as RRM 310 Food Service Systems-Operations)	3



PBHC 5700	Epidemiology for Public Health (will apply to BS requirements as RRM 311 Food Service Systems-Prod & Purchase)	3
PBHC 5160	Public Health Foundations (will apply to BS requirements as FSHN Elective)	2
FSHN 6610	International Nutrition (MPH Elective - will apply to BS requirements as FSHN 661 or FSHN 500)	2
or FSHN 5000	Food Systems, Nutrition and Food Security	

### BS in Nutrition and Food Science: Concentration in Dietetics

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health (will apply to BS requirements as RRM 310 Food Service Systems-Operations)	3
PBHC 5700	Epidemiology for Public Health (will apply to BS requirements as RRM 311 Food Service Systems-Prod & Purchase)	3
PBHC 5160	Public Health Foundations (will apply to BS requirements as FSHN Elective)	2
FSHN 6610	International Nutrition (will apply to BS requirements as FSHN 661 or FSHN 500)	2
or FSHN 5000	Food Systems, Nutrition and Food Security	

### BS in Human Development and Family Studies

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health (will apply to BS requirements as Elective or Concentration Course)	3
PBHC 5700	Epidemiology for Public Health (will apply to BS requirements as Elective or Concentration Course)	3
PBHC 5160	Public Health Foundations (will apply to BS requirements as Elective)	2
Approved MPH Elective (will apply to BS requirements as Elective or Concentration Course)		3

### BS in Health and Exercise Science: Concentration in Sports Medicine or Health Promotion

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health (will apply to BS requirements as Elective)	3
PBHC 5700	Epidemiology for Public Health (will apply to BS requirements for HES 345 Population Health and Disease Prevention)	3
PBHC 5160	Public Health Foundations (will apply to BS requirements as Elective)	2
Approved MPH Elective (will apply to BS requirements as Elective)		3

### BS in Psychology

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health (will apply to BS requirements as STAT 301 Introduction to Statistical Methods or STAT 307 Introduction to Biostatistics)	3
PBHC 5700	Epidemiology for Public Health (will apply to BS requirements as Elective)	3

PBHC 5160	Public Health Foundations (will apply to BS requirements as Elective)	2
PSCY 5150	Women's Health (MPH Elective - will apply to BS requirements as PSY 515 or PSY 517)	3
or PSCY 5170	Perspectives in Global Health	

### BS in Biological Sciences/Zoology

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health (will apply to BS requirements as upper division Zoology credit)	3
PBHC 5700	Epidemiology for Public Health (will apply to BS requirements as upper division Zoology credit)	3
PBHC 5160	Public Health Foundations (will apply to BS requirements as upper division Zoology credit)	2
Approve MPH Elective (will apply to BS requirements as Elective)		3

### BS in Biological Sciences

Code	Title	Hours
PBHC 5600	Quantitative Methods in Public Health (will apply to BS requirements as Pre-Health Biology selected course in approved field or content area of study)	3
PBHC 5700	Epidemiology for Public Health (will apply to BS requirements as Pre-Health Biology selected course in approved field or content area of study)	3
PBHC 5160	Public Health Foundations (will apply to BS requirements as Pre-Health Biology selected course in approved field or content area of study)	2
Approve MPH Elective (will apply to BS requirements as Elective)		3

Veterinarians area unique national resource, as they are the only health professionals trained in multi-species comparative medicine. With a public health perspective, address relationships among food production, disease control and the public's health.

The CSU College of Veterinary Medicine and Biomedical Sciences (CVMBS) and the Colorado School of Public Health (ColoradoSPH) have created a combined 5-year program of study that can result in earning both the Master of Public Health (MPH) degree and Doctor of Veterinary Medicine (DVM) degree. Successful applicants will matriculate in the MPH Program during the first year of the combined program and will complete approximately 30 of the required 42 semester credit hours of core and elective courses in three or four semesters, including summer. The summer term before the start of the DVM Program will include the practicum and Capstone Project. Upon successful completion of the first year of the MPH program, students will earn a position in the first year of the DVM program. During the first two years of the DVM program students will be able to take up 12 credits of DVM coursework that can transfer in to the MPH program to complete the 42 credit requirement. Only DVM courses where the student received a B or better can be transferred in. The total number of credits that are transferrable from the DVM program to the MPH program may vary slightly depending on which campus the student selects for the home campus for the MPH degree program. Additionally, some of the MPH coursework can be completed in the summer before fall enrollment in the MPH program which can help to reduce the higher course load of the first two semesters of the MPH degree program. Students will complete the remaining requirements of the MPH program with coursework included in the first two years of the DVM program.

Students are allowed to apply up to 12 credits (dependent on MPH concentration) of approved DVM coursework towards the MPH degree.

## Curriculum

Code	Title	Hours
<b>Required Public Health Core Courses (17 credits)</b>		
PBHC 5160	Public Health Foundations	2
PBHC 5500	Social and Community Health	3
PBHC 5300	Environmental Public Health and Policy	3
PBHC 5200	Healthcare Systems, Policy and Management	3
PBHC 5700	Epidemiology for Public Health	3
PBHC 5600	Quantitative Methods in Public Health	3
<b>Required MPH Concentration Courses (12-15 credits)</b>		<b>12-15</b>
<b>DVM Courses Approved as MPH Concentration or Elective Courses (6-9 credits from the following courses):</b>		<b>6-9</b>
VM 637	Bacteriology and Mycology	3
VM 638	Veterinary Parasitology	2
VM 707	Emerging Infectious Disease	1
VM 714	Veterinary Preventive Medicine	4
VSCS 648	Food Animal Production and Food Safety	2
<b>Practicum (2 credits)</b>		
PBHC 6860	CSU Public Health Practicum	2
<b>Capstone (2 credits)</b>		
PBHC 6980	MPH Capstone - CSU	2
<b>Total Hours</b>		<b>42</b>

## Public Health: Doctor of Philosophy (PhD) programs

We offer advanced research and training opportunities to future public health scientists through our Doctor of Philosophy (PhD) program, offered at our CU Anschutz Medical Campus location.

If accepted into our PhD program, you may receive tuition assistance and a stipend, depending on your concentration and availability of funds. While you're in the program, you'll work directly with a faculty research mentor to develop a greater understanding of the research process and methods that will allow you to find the answers to your public health questions. Our students also have the administrative support of the University of Colorado Denver Graduate School staff to navigate the curriculum and requirements. When you graduate, you'll be ready for the next step in your career as an independent scientist.

List of all PhD Programs

- Biostatistics (PhD) (p. 129)
- Epidemiology (PhD) (p. 130)
- Health Services Research (PhD) (p. 130)

## Biostatistics (PhD)

This program will prepare you for advanced study and research in biostatistics. It's a great fit for students with a strong background in mathematics and statistics who are interested in working in health care and biological settings. As a student in this program, you'll function as an independent investigator or co-investigator with researchers in other areas, taking the lead in designing studies and analyses. Our faculty (<https://coloradosph.cuanschutz.edu/education/departments/>)

are studying the analysis of longitudinal data, clinical trials, statistical methods in genetics and genomics, causal modeling, treatment of missing data and imputation, image analysis, functional data analysis, and data visualization, which means you can find the mentor who's right for you.

If you have an MS in Biostatistics or a related field, this program can be completed in three to four years. Typically, you'll spend the first one to two years devoted to coursework and the later years on research and your dissertation. Research and dissertation work involves developing, comparing, and evaluating statistical methods (e.g. methods for analyzing data), typically motivated by an application in healthcare or biology.

### Curriculum

Code	Title	Hours
<b>Required MS Biostatistics Courses (20 credits)</b>		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
BIOS 6621	Statistical Consulting I	1
BIOS 6622	Statistical Consulting II	1
BIOS 6624	Advanced Statistical Methods and Analysis	3
BIOS 6631	Statistical Theory I	3
BIOS 6632	Statistical Theory II	3
BIOS 6643	Analysis of Longitudinal Data	3
<b>Required Public Health Courses (6 credits)</b>		
PUBH 6600	Foundations in Public Health	2
EHOH 6601	Public Health Concepts for Non-MPH	1
EPID 6630	Epidemiology	3
<b>MS Elective Courses (6 credits from the following courses):</b>		
BIOS 6641	Causal Inference	3
BIOS 6642	Introduction to Python Programming	3
BIOS 6645	Predictive Analytics	3
BIOS 6646	Survival Analysis	3
BIOS 6649	Clinical Trials: Statistical Design and Monitoring	3
BIOS 6655	Statistical Methods for Genetic Association Studies	3
BIOS 6660	Analysis of Genomic Data using R and Bioconductor	3
<b>Required PhD Biostatistics Courses (6 credits)</b>		
BIOS 7731	Advanced Mathematical Statistics I	3
BIOS 7732	Theory/Algorithms Data Science	3
<b>PhD Electives (9 credits from the following courses):</b>		
BIOS 7659	Statistical Methods in Genomics	3
BIOS 7712	Statistical Methods for Correlated Data	1
BIOS 7713	Statistical Methods for Missing Data	1-2
BIOS 7714	Advanced Statistical Computing	3
BIOS 7715	Stochastic Modeling	2
BIOS 7717	Bayesian Biostatistical Methods	3
BIOS 7718	Introduction to Biomedical Image Analysis	3
BIOS 7719	Information Visualization	3
BIOS 7720	Applied Functional Data Analysis	2
BIOS 7721	Joint Modeling of Longitudinal and Survival Data	1
<b>Elective Health Sciences Courses (3 credits)</b>		<b>3</b>
<b>Dissertation (30 credits)</b>		

BIOS 8990	Doctoral Thesis	1-10
Total Hours		80

## Epidemiology (PhD)

In this program, you'll gain advanced skills in analytical methods, biostatistics, and field research methods. In addition, you'll learn about grant writing and research ethics and have the opportunity to select a minor course of study. Our department has a strong base of funded research projects providing students with many opportunities for research support and data for dissertation projects. Our faculty (<https://coloradosph.cuanschutz.edu/education/departments/epidemiology/directory/>) are studying everything from food safety, to diabetes, to gene-environment interactions, which means you can find the mentor who's right for you.

In this program, you'll take courses in epidemiology, biostatistics, research methods, analytical methods, and research ethics. You'll also complete a dissertation based on work completed under the supervision of one of our world-class researchers.

### Curriculum

Code	Title	Hours
Required Epidemiology Courses (6 credits)		
EPID 7631	Advanced Epidemiology 1	3
EPID 7632	Advanced Epidemiology 2	3
Required Biostatistics Courses (6 credits)		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
Required Research Methods Courses (13 credits)		
EPID 7605	Research Methods with Secondary Data Sources	3
EPID 7911	Epidemiologic Field Methods (3 credits)	1-4
EPID 7912	Developing a Research Grant	3
4 credits of advanced analytic coursework in biostatistics or epidemiologic methods from the ColoradoSPH		4
Required Ethics Course (1 credit)		
CLSC 7150	Ethics and Responsible Conduct of Research	1
Required Public Health Courses (6 credits)		
PUBH 6600	Foundations in Public Health	2
EHOH 6601	Public Health Concepts for Non-MPH	1
EPID 6630	Epidemiology	3
Biomedical Sciences Electives (6 credits)		6
Electives (6 credits)		6
Dissertation (30 credits)		
EPID 8990	Doctoral Thesis	1-10
Total Hours		74

## Health Services Research (PhD)

In this program, you'll study how the interplay of social factors, health technologies, and personal behaviors impact healthcare access, healthcare costs, and quality of life. You'll be trained to think like a scientist, implementing and developing research studies that assess predictors of disease and the effectiveness of interventions. Our faculty (<https://coloradosph.cuanschutz.edu/education/departments/health-systems-management-policy/directory/>) are studying everything from

disaster preparedness to health insurance to financing hospitals, which means you can find the mentor who's right for you.

In this program, you'll take courses in biostatistics, research methodologies, study design, healthcare economics and policy, epidemiology, and clinical outcomes assessment. You'll also complete a dissertation based on work completed under the supervision of one of our world-class researchers.

### Curriculum

Code	Title	Hours
Required Health Systems, Management & Policy Courses (14 credits)		
HSMP 6604	Health Care Economics	3
HSMP 7607	Methods in Health Services Research I	3
HSMP 7609	Methods in Health Services Research II	3
HSMP 7010	Foundations in Health Services Research (Fall and Spring semesters -1 credit per semester)	2
Health Systems Management Policy Elective (3 credits)		3
Required Biostatistics Courses (9 credits)		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
BIOS 6680	Data Management Using SAS	3
Required Clinical Sciences Courses (7 credits)		
CLSC 6210	Research Seminars in Clinical Science	1
CLSC 6270	Critical Appraisal Seminars in Clinical Science	1
CLSC 7101	Grant Writing I	1
CLSC 7150	Ethics and Responsible Conduct of Research	1
CLSC 7202	Clinical Outcomes and Applications	3
Required Public Health Courses (6 credits)		
PUBH 6600	Foundations in Public Health	2
EHOH 6601	Public Health Concepts for Non-MPH	1
EPID 6630	Epidemiology	3
Required Cognate Courses (6 credits)		6
Dissertation (30 credits)		
HSMP 8990	Doctoral Thesis - Health Systems Management and Policy	1-10
Total Hours		72

## Public Health: Doctor of Public Health (DrPH)

The Doctor of Public Health (DrPH) program is a professional doctoral-level program designed to develop public health leaders: researchers, policy-makers, and practitioners who are able to address complex public health issues. As a DrPH student, you'll combine sophisticated analytic and research skills with a broad understanding of the environmental, political, social, medical, ethical, and economic factors that contribute to health and well-being.

Our students are trained in leadership, management, and advocacy. As part of the DrPH program, you'll develop strong research and practice skills in a main focus area of public health, as well as minor in a secondary area of expertise.

This program is designed to help you become a public health leader. You'll learn how to develop, implement, and evaluate evidence-based programs that contribute to community health and wellness. In addition to taking

courses that cover research methods and advanced public health theory and practice, you'll also learn about leadership, management, and grant writing. Areas of specialization include (but are not limited to): community-based participatory research, health equity, program design and evaluation, American Indian and Alaska Native health, mHealth strategies, and mental health. Faculty in our department study everything from adverse childhood experiences to nutrition to school-based interventions, which means you can find the faculty mentor (<https://coloradosph.cuanschutz.edu/education/departments/community-behavioral-health/directory/>) who's right for you.

Upon entering the DrPH program, students will have three years to pass the written qualifying exam and should complete the dissertation and public defense of the dissertation within seven years of entering the program.

Each student, in consultation with their faculty advisor, will develop a proposed course of study. The course of study must specify both a major focus area and minor area of study, courses to be taken, and proposed timeline for courses, practicum, preliminary and comprehensive exams, and dissertation.

## Curriculum

Code	Title	Hours
<b>Required DrPH Courses (13 credits)</b>		
PUBH 6842	DrPH Seminar (1 credit hour semesters, first 4 semesters of tenure)	4
CBHS 7020	DrPH Seminar in Leadership	3
HSMP 6633	Management of Non-Profit Organizations in Public Health (plus 1 credit HSMP 6840 Independent Study)	3
or HSMP 6634	Management, Budgeting and Public Health Administration	
EPID 7912	Developing a Research Grant	3
<b>Required Community &amp; Behavioral Health Courses (12 credits)</b>		
CBHS 7670	CBH Advanced Seminar	3
CBHS 6622	Qualitative Research Methods	3
CBHS 7010	Latent Variable Methods	3
BIOS 6602	Applied Biostatistics II	3
or CBHS 6637	Applied Quantitative Analysis for Comm Hlth Science	
<b>Required Minor Courses (6 credits)</b>		
<b>Selective Courses (9 credits)</b>		
<b>Directed Reading (2 credits)</b>		
CBHS 7030	DrPH Directed Reading	1-2
<b>DrPH Practicum (4 credits)</b>		
PUBH 6850	DrPH Practicum	2-4
<b>Dissertation (9 credits)</b>		
CBHS 8991	DrPH Dissertation - Community & Behavioral Health	1-10
<b>Total Hours</b>		<b>55</b>

This program is designed to help you become a public health leader. As a student in this program, you'll learn how to identify, evaluate, and control environmental and occupational stressors. You'll take courses in field investigations, Geographic Information Systems, biostatistics, leadership and management, and proposal writing. In addition to required coursework, you can focus your electives on an area of specialization such as environmental justice, toxicology, risk assessment, climate

and health, and occupational health and safety. This broad range of topics means you can find the area of study and faculty mentor (<https://coloradosph.cuanschutz.edu/education/departments/environmental-occupational-health/directory/>) that's right for you.

Upon entering the DrPH program, students will have three years to pass the written qualifying exam and should complete the dissertation and public defense of the dissertation within seven years of entering the program.

Each student, in consultation with their faculty advisor, will develop a proposed course of study. The course of study must specify both a major focus area and minor area of study, courses to be taken, and proposed timeline for courses, practicum, preliminary and comprehensive exams, and dissertation.

## Curriculum

Code	Title	Hours
<b>Required DrPH Courses (13 credits)</b>		
PUBH 6842	DrPH Seminar (1 credit hour semesters, first 4 semesters of tenure)	4
CBHS 7020	DrPH Seminar in Leadership	3
HSMP 6633	Management of Non-Profit Organizations in Public Health (plus 1 credit HSMP 6840 Independent Study)	3
or HSMP 6634	Management, Budgeting and Public Health Administration	
EPID 7912	Developing a Research Grant	3
<b>Required Environmental &amp; Occupational Health Courses (12 credits)</b>		
EHOH 7631	Advanced Methods in Environmental & Occupational Health	2
EHOH 7632	Advanced Field Methods in EOH	1
EHOH 6621	GIS for Public Health Research/Practice	3
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
<b>Required Minor Courses (6 credits)</b>		
<b>Selective Courses (9 credits)</b>		
<b>Directed Reading (2 credits)</b>		
EHOH 7030	DrPH Directed Reading	1-2
<b>DrPH Practicum (4 credits)</b>		
PUBH 6850	DrPH Practicum	2-4
<b>Dissertation (9 credits)</b>		
EHOH 8991	DrPH Dissertation-Environmental & Occupational Health	1-10
<b>Total Hours</b>		<b>55</b>

This program is designed to help you become a public health leader. In this program, you'll learn how to identify factors that affect the health of populations and how to create, implement, and evaluate disease control and prevention strategies. In addition to taking courses in advanced research methods and a minor area of your choosing, you'll also learn about leadership, management, and grant writing. Areas of specialization range from health data and information systems to chronic disease prevention. And our faculty (<https://coloradosph.cuanschutz.edu/education/departments/epidemiology/directory/>) are studying everything from food safety, to diabetes, to gene-environment interactions, which means you can find the mentor who's right for you.



Upon entering the DrPH program, students will have three years to pass the written qualifying exam and should complete the dissertation and public defense of the dissertation within seven years of entering the program.

Each student, in consultation with their faculty advisor, will develop a proposed course of study. The course of study must specify both a major focus area and minor area of study, courses to be taken, and proposed timeline for courses, practicum, preliminary and comprehensive exams, and dissertation.

Curriculum

Code	Title	Hours
Required DrPH Courses (13 credits)		
PUBH 6842	DrPH Seminar (1 credit hour semesters, first 4 semesters of tenure)	4
CBHS 7020	DrPH Seminar in Leadership	3
HSMP 6633	Management of Non-Profit Organizations in Public Health (plus 1 credit HSMP 6840 Independent Study)	3
or HSMP 6634	Management, Budgeting and Public Health Administration	
EPID 7912	Developing a Research Grant	3
Required Epidemiology Courses (12 credits)		
EPID 7632	Advanced Epidemiology 2	3
EPID 7605	Research Methods with Secondary Data Sources	3
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
Required Minor Courses (6 credits)		6
Selective Courses (9 credits)		9
Directed Reading (2 credits)		
EPID 7030	DrPH Directed Reading	1-2
DrPH Practicum (4 credits)		
PUBH 6850	DrPH Practicum	2-4
Dissertation (9 credits)		
EPID 8991	DrPH Dissertation work in Epidemiology	1-10
Total Hours		55

Public Health: Master of Science (MS)

We offer the Master of Science (MS) degree at our CU Anschutz Medical Campus location, a leading health sciences campus, where you can take your research and analysis skills to the next level. The MS program focuses on diving deeply into the science of your chosen area of public health. This 36-43 credit hour program is designed to be completed in two to three years. As part of your degree, you'll complete a thesis, so you'll get practical experience with scientific thinking and processes that can help propel your career.

The following Master of Science programs are available through the Colorado School of Public Health:

- Biostatistics (MS) (p. 132)
- Epidemiology (MS) (p. 133)
- Health Services Research, Policy, & Administration (MS) (p. 133)

Biostatistics (MS)

This program emphasizes the applied and theoretical nature of biostatistics. In addition to courses in theory, statistical computing, consulting, analysis of clinical trials, and longitudinal and survival data, you'll be exposed to a wide variety of research areas including statistical genetics and genomics, causal inference, infectious disease, and cancer research. During the program, you'll get involved in research with a faculty mentor as part of your thesis or research paper. You'll also have the opportunity to specialize in one of two minor areas within the MS—Statistical Genomics and Data Science Analytics.

This program will prepare you for in-depth study and research in statistics as it applies to healthcare and biological settings. You'll get a balance between theory, methods, and hands-on practical and research experience. Our required courses include applied and theoretical statistics, statistical computing, consulting, and advanced statistical modeling. Plus, you can choose elective coursework ranging from analysis of clinical trials to survival analysis to statistical 'omics. You'll also complete a Master's research paper or thesis.

In addition, we offer two minor areas of specialization within the MS—Statistical Genomics and Data Science Analytics. We recommend planning out the minor in your first year to ensure timely graduation and availability of electives.

Curriculum

Code	Title	Hours
Required Biostatistics MS Courses (20 credits)		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
BIOS 6621	Statistical Consulting I	1
BIOS 6622	Statistical Consulting II	1
BIOS 6624	Advanced Statistical Methods and Analysis	3
BIOS 6631	Statistical Theory I	3
BIOS 6632	Statistical Theory II	3
BIOS 6643	Analysis of Longitudinal Data	3
Required Public Health Courses (6 credits)		
PUBH 6600	Foundations in Public Health	2
EHOH 6601	Public Health Concepts for Non-MPH	1
EPID 6630	Epidemiology	3
Electives (6 credits from the following courses):		6
BIOS 6641	Causal Inference	3
BIOS 6642	Introduction to Python Programming	3
BIOS 6645	Predictive Analytics	3
BIOS 6646	Survival Analysis	3
BIOS 6649	Clinical Trials: Statistical Design and Monitoring	3
BIOS 6655	Statistical Methods for Genetic Association Studies	3
BIOS 6660	Analysis of Genomic Data using R and Bioconductor	3
MS Thesis or MS Research Paper (4 credits)		4
BIOS 6651	BIOS MS Research Paper	1-6
or BIOS 6950	Masters Thesis: Biostatistics	
Total Hours		36

## Epidemiology (MS)

In this program, you'll learn about the causes, distribution, and control of diseases in populations, with an emphasis on methodology. In epidemiology, we're passionate about providing the scientific evidence that can save lives. And as a student in the department, you'll have access to faculty with a wide range of expertise—from food safety, to diabetes, to gene-environment interactions, we do it all.

In this 38-credit program, you'll take courses in epidemiology, biostatistics, research ethics and methods, and specific epidemiological topics. You'll also complete a 4-credit Master's research paper or Master's thesis based on work you'll do in collaboration with our world-class researchers.

### Curriculum

Code	Title	Hours
<b>Required Epidemiology Courses (12 credits)</b>		
EPID 6626	Research Methods in Epidemiology	3
EPID 6630	Epidemiology	3
EPID 6631	Analytical Epidemiology	3
EPID 7631	Advanced Epidemiology 1	3
<b>Required Biostatistics Courses (9 credits)</b>		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
BIOS 6680	Data Management Using SAS	3
<b>Required Public Health Courses (3 credits)</b>		
PUBH 6600	Foundations in Public Health	2
EHOH 6601	Public Health Concepts for Non-MPH	1
<b>Topic-Based Epidemiology Courses (7 credits from the following courses):</b>		
EPID 6622	Cancer Prevention and Control	2
EPID 6624	Public Health Surveillance	2
EPID 6629	Clinical Epidemiology	2
EPID 6634	Applied Global Health Epidemiology	2
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6637	Injury and Violence Epidemiology and Prevention	2
EPID 6640	Investigation of Disease Outbreaks	2
EPID 6641	Epidemiology of Foodborne and Diarrheal Diseases	2
EPID 6642	Genetics in Public Health	2
EPID 6643	Epidemiology and Prevention of TB/HIV/STDs	2
EPID 6644	Maternal Child Health Epidemiology	3
EPID 6646	Introduction to Systematic Reviews	1
EPID 7605	Research Methods with Secondary Data Sources	3
EPID 7615	Pharmacoepidemiology	2-4
EPID 7640	Genetic Epidemiology	2
<b>Required Ethic in Research Course (1 credit)</b>		
CLSC 7150	Ethics and Responsible Conduct of Research	1
<b>Electives (2 credits)</b>		
<b>MS Thesis or MS Research Paper (4 credits)</b>		
EPID 6651	EPID MS Research Paper	1-6

or EPID 6950 Masters Thesis

**Total Hours**

**38**

## Health Services Research, Policy, & Administration (MS)

This program emphasizes the multidisciplinary scientific foundations of healthcare research. As a student in this program, you'll study how the interplay of social factors, health technologies, and personal behaviors impact healthcare access, healthcare cost and quality, and quality of life. You'll be trained to think like a scientist, implementing and developing of research studies that assess predictors of disease and the effectiveness of interventions.

In this 43- 46 credit program, you'll take courses in biostatistics, research methodologies, study design, healthcare economics and policy, epidemiology, and clinical outcomes assessment. You'll also complete a 4-credit Master's research paper or Master's thesis based on work you'll do in collaboration with our world-class researchers.

### Curriculum

Code	Title	Hours
<b>Required Health Systems, Management &amp; Policy Courses (20 credits)</b>		
HSMP 6604	Health Care Economics	3
HSMP 6605	Health Policy	3
HSMP 6609	Cost Benefit and Effectiveness in Health	2
HSMP 6616	Intro. to Health Policy Analysis and Communication	1
HSMP 7010	Foundations in Health Services Research (Fall and Spring semesters - 1 credit per semester)	2
HSMP 7601	Research Design and Proposal Preparation	3
HSMP 7607	Methods in Health Services Research I	3
HSMP 7609	Methods in Health Services Research II	3
<b>Required Biostatistics Courses (9 credits)</b>		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
BIOS 6680	Data Management Using SAS	3
<b>Required Public Health Courses (6 credits)</b>		
PUBH 6600	Foundations in Public Health	2
EHOH 6601	Public Health Concepts for Non-MPH	1
EPID 6630	Epidemiology	3
<b>Required Additional Courses (7 credits)</b>		
CBHS 6610	Social and Behavioral Factors and Health	3
CLSC 7150	Ethics and Responsible Conduct of Research	1
CLSC 7202	Clinical Outcomes and Applications	3
<b>MS Thesis or MS Research Paper (4 credits)</b>		
HSMP 6651	HSR Masters Research Paper	1-6
or HSMP 6950 MS Thesis		
<b>Total Hours</b>		<b>46</b>

# Graduate Medical Education (GME) Program

## Overview

The Graduate Medical Education (GME) Office is under the leadership & direction of Carol M. Rumack, M.D. FACR, Associate Dean for GME at the University of Colorado School of Medicine (CUSOM), Distinguished Professor of Radiology and Pediatrics, & Designated Institutional Official (DIO) for the Accreditation Council for Graduate Medical Education (ACGME).

The GME Office is responsible for the oversight of the ACGME accreditation & educational environment, and payroll & benefits for CUSOM GME Residency & Fellowship training programs.

**Mission:** CUSOM GME provides leadership, education, and support to its Residencies & Fellowships to ensure that the Residents/Fellows continue the standards of excellence in patient care, teaching, & research that have been established by CUSOM GME training programs.

**Vision:** CUSOM GME will achieve the highest level of ACGME accreditation for the CUSOM institution, and Residency & Fellowship training programs.

### Values:

- Accountability & Transparency
- Equity & Fairness
- Diversity & Inclusion
- Excellence & Innovation
- Stewardship & Service
- Leadership & Collaboration
- Protecting & Promoting Resident/Fellows Wellbeing

The GME Office implements policies of the Graduate Medical Education Committee (GMEC) of the School of Medicine. The ACGME charges the GMEC with responsibility for monitoring & advising on all aspects of Residency education including compliance with ACGME work hours, patient safety & quality improvement requirements, and in maintaining a strong learning environment.

The GMEC is composed of Program Directors, GME Faculty Liaisons from the affiliated teaching hospitals & Officers of the Housestaff Association. GMEC reports to the Dean of the School of Medicine through the Associate Dean for GME & Senior Associate Dean for Education. The GME website is: <https://medschool.cuanschutz.edu/graduate-medical-education> (<https://medschool.cuanschutz.edu/graduate-medical-education/>).

## Application Process

To apply for a CUSOM GME Residency or Fellowship, applicants must meet the minimum selection criteria described in the GME Eligibility and Selection Policy, located here: <https://medschool.cuanschutz.edu/graduate-medical-education/directors-coordinators/cugme-policies> (<https://medschool.cuanschutz.edu/graduate-medical-education/directors-coordinators/cugme-policies/>)

Recruitment is coordinated by each training program. Inquiries & details about the process should be directed to the specific residency or fellowship. For the list of CUSOM GME Residencies and Fellowships, refer to the GME Program Directory (<https://medschool.cuanschutz.edu/graduate-medical-education/programs/program-directory> (<https://medschool.cuanschutz.edu/graduate-medical-education/programs/program-directory/>))

Many CUSOM GME Residencies & Fellowships participate in the National Residency Matching Program, Electronic Residency Application System and/or the San Francisco Central Application System.

## Training Programs

Contact information for CUSOM GME Residencies & Fellowships can be found at on the GME website: <https://medschool.cuanschutz.edu/graduate-medical-education/programs/program-directory> (<https://medschool.cuanschutz.edu/graduate-medical-education/programs/program-directory/>) .

Department	Program Name	Type	ACGME	Non-ACGME
Anesthesiology	Adult Cardiothoracic Anesthesiology	Fellowship	X	
Anesthesiology	Advanced Fellowship in Pediatric Perioperative Quality Improvement	Fellowship		X
Anesthesiology	Anesthesiology	Residency	X	
Anesthesiology	Congenital Cardiac Anesthesiology	Fellowship		X
Anesthesiology	Critical Care Medicine	Fellowship	X	
Anesthesiology	Critical Care Medicine (Emerg. Med. 2nd Yr.)	Fellowship		X
Anesthesiology	Neuroanesthesia Fellowship	Fellowship		X
Anesthesiology	Neurohospitalist Fellowship	Fellowship		X
Anesthesiology	Obstetric Anesthesiology	Fellowship	X	

Anesthesiology	Pediatric Anesthesiology	Fellowship	X	
Anesthesiology	Perioperative Management of Liver Transplantation for Anesthesiologist Fellowshi	Fellowship		X
Anesthesiology	Regional Anesthesiology & Acute Pain Management	Fellowship		X
Dermatology	Dermatology	Residency	X	
Dermatology	Immunodermatology	Fellowship		X
Dermatology	Micrographic Surgery and Dermatologic Oncology	Fellowship	X	
Dermatology	Pediatric Dermatology	Fellowship		X
Emergency Medicine	Administration, Operations, & Quality Fellowship	Fellowship		X
Emergency Medicine	Climate and Health Science Policy Fellowship	Fellowship		X
Emergency Medicine	Fellowship in Global Emergency and Public Health	Fellowship		X
Emergency Medicine	Fellowship in Wilderness and Environmental Medicine	Fellowship		X
Family Medicine	Addiction Medicine Fellowship	Fellowship	X	
Family Medicine	Family Medicine Junior Faculty Development Fellowship	Fellowship		X
Family Medicine	Hospice and Palliative Medicine	Fellowship	X	
Family Medicine	Occupational Medicine ABPM Pathways Fellowship	Fellowship		X
Family Medicine	Preventive Medicine STD Fellowship	Fellowship		X
Family Medicine	Preventive Medicine-Occupational	Residency	X	
Family Medicine	Public Health & General Preventive Medicine	Residency	X	
Family Medicine	Sports Medicine (Family Medicine)	Fellowship	X	
Family Medicine	University Hospital Family Medicine	Residency	X	
Family Medicine	University Hospital Family Medicine Rural Training Track	Residency	X	
Internal Medicine	Adult Congenital Heart Disease Fellowship	Fellowship	X	
Internal Medicine	Advanced Cardiac Imaging	Fellowship		X
Internal Medicine	Advanced Heart Failure and Transplant Cardiology	Fellowship	X	
Internal Medicine	Advanced Nephrology	Fellowship		X
Internal Medicine	Advanced Pulmonary Fellowship in Interstitial Lung Disease	Fellowship		X
Internal Medicine	Advanced Research Program in Infectious Diseases	Fellowship		X
Internal Medicine	Advanced Therapeutic Endoscopy	Fellowship		X
Internal Medicine	Allergy and Immunology-Adult	Fellowship	X	
Internal Medicine	Allergy and Immunology-Adult Research	Fellowship		X
Internal Medicine	Cardiology Fellowships	Fellowship		X



Internal Medicine	Cardiovascular Disease	Fellowship	X	
Internal Medicine	Clinical Cardiac Electrophysiology	Fellowship	X	
Internal Medicine	Developmental Therapeutics	Fellowship		X
Internal Medicine	Diabetes Fellowship	Fellowship		X
Internal Medicine	Endocrine Research	Fellowship		X
Internal Medicine	Endocrinology, Diabetes & Metabolism	Fellowship	X	
Internal Medicine	Gastroenterology	Fellowship	X	
Internal Medicine	Gastroenterology Research	Fellowship		X
Internal Medicine	Gastrointestinal Cancer Clinical/Translational Research	Fellowship		X
Internal Medicine	Geriatric Medicine	Fellowship	X	
Internal Medicine	Geriatric Research	Fellowship		X
Internal Medicine	Hematology and Oncology	Fellowship	X	
Internal Medicine	Hospital Medicine Fellowship in Quality and Systems	Fellowship		X
Internal Medicine	Infectious Disease	Fellowship	X	
Internal Medicine	Internal Medicine	Residency	X	
Internal Medicine	Internal Medicine Chiefs	Fellowship		X
Internal Medicine	Internal Medicine/Pediatrics	Residency	X	
Internal Medicine	Interventional Cardiology	Fellowship	X	
Internal Medicine	Interventional Pulmonology	Fellowship		X
Internal Medicine	Investigational Cancer Therapeutics-Thoracic Oncology	Fellowship		X
Internal Medicine	Mycobacterial Infections	Fellowship		X
Internal Medicine	Nephrology	Fellowship	X	
Internal Medicine	Obesity Medicine Fellowship	Fellowship		X
Internal Medicine	Pulmonary Disease and Critical Care Medicine	Fellowship	X	
Internal Medicine	Pulmonary Sciences & Critical Care Research	Fellowship		X
Internal Medicine	Rheumatology	Fellowship	X	
Internal Medicine	Rheumatology Research	Fellowship		X
Internal Medicine	Sleep Medicine	Fellowship	X	

Internal Medicine	Thyroid Cancer Fellowship	Fellowship		X
Internal Medicine	Transplant Hepatology	Fellowship	X	
Internal Medicine	Transplant Infectious Disease Fellowship	Fellowship		X
Internal Medicine	Vascular Medicine Fellowship	Fellowship		X
Neurological Surgery	Complex Spinal Surgery Fellowship	Fellowship		X
Neurological Surgery	Endovascular Neurosurgery/Neurointerventional Radiology	Fellowship		X
Neurological Surgery	Neurological Surgery	Residency	X	
Neurological Surgery	Neurological Surgery Critical Care	Fellowship		X
Neurological Surgery	Neurosurgery Stereotactic & Functional Fellowship	Fellowship		X
Neurological Surgery	Neurosurgical Oncology Fellowship	Fellowship		X
Neurological Surgery	Pediatric Neurological Surgery	Fellowship		X
Neurological Surgery	Skull Base Fellowship	Fellowship		X
Neurology	Adult Epilepsy	Fellowship	X	
Neurology	Behavioral Neurology and Neuropsychiatry	Fellowship		X
Neurology	Child Neurology	Residency	X	
Neurology	Child Neurology Neurohospitalist Fellowship	Fellowship		X
Neurology	Clinical Neuromuscular Pathology	Fellowship		X
Neurology	Headache Fellowship	Fellowship		X
Neurology	Movement Disorders	Fellowship		X
Neurology	Multiple Sclerosis	Fellowship		X
Neurology	Neuro-Infectious Diseases & Autoimmune Neurology	Fellowship		X
Neurology	Neurology	Residency	X	
Neurology	Neuromuscular Medicine	Fellowship	X	
Neurology	NeuroOncology	Fellowship		X
Neurology	Neuro-Ophthalmology	Fellowship		X
Neurology	Pediatric Epilepsy	Fellowship	X	
Neurology	Vascular Neurology	Fellowship	X	
Obstetrics and Gynecology	Complex Family Planning	Fellowship	X	
Obstetrics and Gynecology	Female Pelvic Medicine and Reconstructive Surgery	Fellowship	X	
Obstetrics and Gynecology	Gynecologic Oncology	Fellowship	X	
Obstetrics and Gynecology	Maternal-Fetal Medicine	Fellowship	X	
Obstetrics and Gynecology	Obstetrics and Gynecology	Residency	X	

Obstetrics and Gynecology	Obstetrics and Gynecology Hospitalist Fellowship	Fellowship		X
Obstetrics and Gynecology	Pediatric & Adolescent Gynecology	Fellowship		X
Obstetrics and Gynecology	Reproductive Endocrinology & Infertility	Fellowship	X	
Ophthalmology	ASOPRS Fellowship in Oculofacial Plastic & Orbital Surgery	Fellowship		X
Ophthalmology	Cornea, External Disease and Refractive Surgery	Fellowship		X
Ophthalmology	Glaucoma Fellowship	Fellowship		X
Ophthalmology	Ophthalmology	Residency	X	
Ophthalmology	Pediatric Ophthalmology and Strabismus Fellowship	Fellowship		X
Ophthalmology	Vitreoretinal Diseases and Surgery	Fellowship		X
Orthopedic Surgery	Adult Reconstruction	Fellowship		X
Orthopedic Surgery	Anterior Spinal Access & Complex Adult Spine Surgery	Fellowship		X
Orthopedic Surgery	Hip Preservation Fellowship	Fellowship		X
Orthopedic Surgery	Orthopedic Foot & Ankle Fellowship	Fellowship		X
Orthopedic Surgery	Orthopedic Hand Surgery	Fellowship	X	
Orthopedic Surgery	Orthopedic Spinal Surgery	Fellowship		X
Orthopedic Surgery	Orthopedic Sports Medicine	Fellowship	X	
Orthopedic Surgery	Orthopedic Sports Medicine-Steadman Hawkins Clinic-Denver	Fellowship	X	
Orthopedic Surgery	Orthopedic Surgery	Residency	X	
Orthopedic Surgery	Pediatric Hip Preservation Fellowship	Fellowship		X
Orthopedic Surgery	Pediatric Orthopedic Surgery	Fellowship	X	
Otolaryngology	Otolaryngology	Residency	X	
Otolaryngology	Pediatric Otolaryngology	Fellowship	X	
Pathology	Blood Banking/Transfusion Medicine	Fellowship	X	
Pathology	Breast & Gynecological Pathology	Fellowship		X
Pathology	Cytopathology	Fellowship	X	
Pathology	Dermatopathology	Fellowship	X	
Pathology	Forensic Pathology	Fellowship	X	
Pathology	Gastrointestinal & Liver Pathology	Fellowship		X
Pathology	Hematopathology	Fellowship	X	
Pathology	Molecular Genetic Pathology	Fellowship	X	
Pathology	Pathology Research	Fellowship		X
Pathology	Pathology-Anatomic and Clinical	Residency	X	
Pathology	Pediatric Pathology	Fellowship	X	
Pathology	Soft Tissue Pathology	Fellowship		X
Pathology	Surgical Pathology	Fellowship		X
Pathology	Transplant Pathology	Fellowship		X
Pediatrics	Adolescent Medicine	Fellowship	X	
Pediatrics	Advanced Neonatology Research	Fellowship		X

Pediatrics	Advanced Pediatric Allergy & Immunology-CHCO	Fellowship	X
Pediatrics	Advanced Pediatric Allergy & Immunology-NJH	Fellowship	X
Pediatrics	Advanced Pediatric Cardiology	Fellowship	X
Pediatrics	Allergy and Immunology-Pediatric CHCO	Fellowship	X
Pediatrics	Allergy and Immunology-Pediatric NJH	Fellowship	X
Pediatrics	American Board of Pediatrics Fellowship	Fellowship	X
Pediatrics	Bone Marrow Transplant and Cellular Therapeutics Clinical Fellowship	Fellowship	X
Pediatrics	Child Abuse Pediatrics	Fellowship	X
Pediatrics	Clinical Biochemical Genetics	Fellowship	X
Pediatrics	Developmental-Behavioral Pediatrics	Fellowship	X
Pediatrics	Genetics Lab Fellowship	Fellowship	X
Pediatrics	Laboratory Genetics & Genomics	Fellowship	X
Pediatrics	Medical Biochemical Genetics	Fellowship	X
Pediatrics	Medical Genetics & Genomics	Residency	X
Pediatrics	Neonatal-Perinatal Medicine	Fellowship	X
Pediatrics	Pediatric Cardiology	Fellowship	X
Pediatrics	Pediatric Clinical Hematology	Fellowship	X
Pediatrics	Pediatric Clinical Nutrition	Fellowship	X
Pediatrics	Pediatric Critical Care Medicine	Fellowship	X
Pediatrics	Pediatric Critical Care Medicine Research	Fellowship	X
Pediatrics	Pediatric Emergency Medicine	Fellowship	X
Pediatrics	Pediatric Emergency Medicine Research	Fellowship	X
Pediatrics	Pediatric Endocrinology	Fellowship	X
Pediatrics	Pediatric Endocrinology Research	Fellowship	X
Pediatrics	Pediatric Experimental Therapeutics	Fellowship	X
Pediatrics	Pediatric Gastroenterology	Fellowship	X
Pediatrics	Pediatric Gastroenterology Research	Fellowship	X
Pediatrics	Pediatric Heart Failure & Transplant Fellowship	Fellowship	X
Pediatrics	Pediatric Hematology/Oncology	Fellowship	X
Pediatrics	Pediatric Hematology/Oncology Research	Fellowship	X
Pediatrics	Pediatric Hospital Medicine	Fellowship	X
Pediatrics	Pediatric Infectious Diseases	Fellowship	X
Pediatrics	Pediatric Infectious Diseases Research	Fellowship	X
Pediatrics	Pediatric Nephrology	Fellowship	X
Pediatrics	Pediatric Neurogenetics Research	Fellowship	X
Pediatrics	Pediatric Neuro-Oncology	Fellowship	X
Pediatrics	Pediatric Pulmonology	Fellowship	X
Pediatrics	Pediatric Pulmonology Research	Fellowship	X
Pediatrics	Pediatric Rheumatology	Fellowship	X
Pediatrics	Pediatric Transplant Hepatology	Fellowship	X
Pediatrics	Pediatrics	Residency	X
Pediatrics	Pediatrics/Medical Genetics & Genomics	Residency	X
Pediatrics	Pediatrics/Physical Medicine & Rehabilitation	Residency	X
Physical Medicine and Rehab	Pain Medicine	Fellowship	X
Physical Medicine and Rehab	Pediatric Rehabilitation	Fellowship	X
Physical Medicine and Rehab	Physical Medicine and Rehabilitation	Residency	X



Physical Medicine and Rehab	Spinal Cord Injury Medicine	Fellowship	X	
Psychiatry	Addiction Psychiatry	Fellowship	X	
Psychiatry	Addiction Psychiatry Research	Fellowship		X
Psychiatry	Child and Adolescent Psychiatry	Residency	X	
Psychiatry	Consultation-Liaison Psychiatry	Fellowship	X	
Psychiatry	Forensic Psychiatry	Fellowship	X	
Psychiatry	Psychiatry	Residency	X	
Radiation Oncology	Radiation Oncology	Residency	X	
Radiation Oncology	Stereotactic Radiosurgery Fellowship	Fellowship		X
Radiology	Abdominal Imaging	Fellowship		X
Radiology	Breast Imaging	Fellowship		X
Radiology	Cardiothoracic Radiology	Fellowship		X
Radiology	Fetal Cardiac Imaging	Fellowship		X
Radiology	Interventional Radiology (Independent)	Fellowship	X	
Radiology	Interventional Radiology (Integrated)	Residency	X	
Radiology	Musculoskeletal Imaging and Intervention	Fellowship		X
Radiology	Neuroradiology	Fellowship	X	
Radiology	Nuclear Radiology	Fellowship	X	
Radiology	Pediatric Neuroradiology Fellowship	Fellowship		X
Radiology	Pediatric Radiology	Fellowship	X	
Radiology	Radiology-Diagnostic	Residency	X	
Surgery	Surgical Critical Care-Pediatric	Fellowship	X	
Surgery	Burn Fellowship	Fellowship		X
Surgery	Colon & Rectal Surgery	Fellowship	X	
Surgery	Congenital Cardiac Surgery	Fellowship	X	
Surgery	Endourology	Fellowship		X
Surgery	Hepatopancreatobiliary International Fellowship	Fellowship		X
Surgery	International Pediatric Surgery	Fellowship		X
Surgery	Mechanical Cardiac Support and Cardiac Transplantation (Pediatric)	Fellowship		X
Surgery	Minimally Invasive Surgery	Fellowship		X
Surgery	Pediatric Bariatric Minimally Invasive Surgery	Fellowship		X
Surgery	Pediatric Colorectal Surgery Fellowship	Fellowship		X
Surgery	Pediatric Surgery	Fellowship	X	
Surgery	Pediatric Surgery Research	Fellowship		X
Surgery	Pediatric Urology	Fellowship	X	
Surgery	Pediatric Urology Research	Fellowship		X
Surgery	Plastic Surgery	Fellowship	X	
Surgery	Plastic Surgery Integrated Residency	Residency	X	
Surgery	Reconstructive Urology	Fellowship		X
Surgery	Surgery-General	Residency	X	
Surgery	Surgical Critical Care (UCH)	Fellowship	X	
Surgery	Surgical Critical Care-Adult	Fellowship	X	
Surgery	Thoracic Surgery	Fellowship	X	
Surgery	Thoracic Transplant	Fellowship		X
Surgery	Transplant (Solid Organ) Surgery	Fellowship		X
Surgery	Trauma and Acute Care	Fellowship		X
Surgery	Urology	Residency	X	

Surgery	Vascular Surgery	Fellowship	X
Surgery	Vascular Surgery (Integrated)	Residency	X

## Contact GME

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 Fitzsimons Building  
 13001 East 17th Place, Suite N4223  
 Mail Stop: B205  
 Aurora, CO 80045  
 Phone: 303-724-6031  
 Email: GME@UCDENVER.EDU ( GME@ucdenver.edu)

The GME Staff Directory can be found on the GME website: <https://medschool.cuanschutz.edu/graduate-medical-education/about-gme/contact> (<https://medschool.cuanschutz.edu/graduate-medical-education/about-gme/contact/>)

## Graduate School

### Overview

The Graduate School at the University of Colorado Denver | Anschutz Medical Campus oversees, facilitates, and enhances graduate education, while encouraging excellence in research, creative and scholarly work. We offer master's degrees, doctoral degrees, graduate certificates, and non-degree options in a wide variety of programs. Disciplines include Architecture, Biomedical Sciences, Education, Engineering and Design, Humanities, Natural Sciences, Nursing, Pharmaceutical Sciences, Public Affairs, and Public Health. The Anschutz Medical Campus (CU Anschutz) is the largest academic health center in the Rocky Mountain region. The campus combines interdisciplinary teaching, research and clinical facilities to prepare the region's future health care professionals and be a national leader in life sciences research.

### Diversity, Equity, & Inclusion

The Graduate School is committed to diversity and equity in the recruitment and retention of students. We actively seek persons from underrepresented populations, which include, but are not limited to, underrepresented ethnic groups, disabled persons, and those students who are economically disadvantaged, from rural areas, or first-in-family college graduates.

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  - Cancer Biology (PhD) (p. 212)
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  - Rehabilitation Science (PhD) (p. 218)
  - Structural Biology & Biochemistry (PhD) (p. 218)
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## Contact

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 Fitzsimons Building, W5107  
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 Aurora, CO 80045  
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## Graduate School Courses

### ANAT 6111 - Human Gross Anatomy (8 Credits)

The Human Gross Anatomy course examines the form and function of the human body at a macroscopic level. Systems-based and regional anatomy lectures are complemented by full-body cadaver dissection. Medical imaging labs provide the opportunity to learn ultrasound skills. Requirements: Must be a degree-seeking student in MS Modern Human Anatomy program.

Grading Basis: Letter Grade

Typically Offered: Spring.

### ANAT 6205 - Imaging and Modeling (4 Credits)

This course covers major medical and scientific imaging modalities with an emphasis on 3D scientific and medical visualization. Students will also receive instruction in advanced digital image processing and 3D modeling using industry-standard software such as MATLAB and Maya. Prerequisite: Only ANAT degree-seeking students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### ANAT 6208 - Foundations in 3D Modeling for Anatomical Sciences (1 Credit)

An introduction to the applications and techniques necessary for 3D scanning, modeling, and printing. This lab-based course will provide students with hands-on experience on acquiring and processing surface scan data along with strategies for printing and finishing objects using fused-deposition modeling and stereo lithography. Pre-requisite: ANAT 6205

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### ANAT 6210 - Autodesk Maya for Anatomical Science (2 Credits)

Autodesk Maya for Anatomical Sciences teaches students to create professional animations illustrating concepts inherent in the study of medical science using Autodesk Maya. Pre-requisite: ANAT 6208.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

### ANAT 6220 - Unreal Engine for the Anatomical Sciences (2 Credits)

This course builds upon the foundational 3D modeling skills learned in ANAT 6260 and provides students with the practical experience, inspiration, and confidence to incorporate the Unreal Engine into their capstone. Students will deploy an app built with Unreal Engine. Pre-requisite: ANAT 6208 Prerequisite; ANAT-MS student or instructor permission.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### ANAT 6310 - Neuroanatomy (4 Credits)

Structure & Function in the Human Nervous System. Basic neuroanatomy & neural systems with workshop focus employing facilitated discussions & problem-oriented cases. Laboratory sessions will employ brain specimens, models & image sets. Team-based projects are in-depth exploration of topics with development of collaborative presentations.

Requisite: Restricted to ANAT students only.

Grading Basis: Letter Grade

Typically Offered: Fall.

### ANAT 6321 - Human Histology (4 Credits)

Histology is the study of the tissues. By exploring the human structure, function and organization at the histological level, students will gain important pattern recognition skills to integrate microscopic knowledge with macroscopic gross anatomy and other foundational anatomical sciences. (Will replace ANAT 6320) Prereq: Restricted to ANAT students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### ANAT 6330 - Human Embryology (3 Credits)

This graduate level, introductory human embryology course will emphasize developmental aspects of adult anatomy and congenital malformations. Educational value of three-or-four-dimensional models and other ancillary learning resources for human embryology will also be explored. Requisite: Restricted to ANAT students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### ANAT 6412 - Foundations of Teaching (1 Credit)

This course will provide students with training, practice, and constructive feedback in effective teaching skills in order to be successful in the biomedical professions. Topics include learning objectives, the neurobiology of learning, assessments, and effective communication within and outside the classroom.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6490 - Advanced Teaching in Anatomical Sciences (3 Credits)**

This course offers a hands-on, supervised experience as an anatomical sciences educator. Readings and discussions will enhance your understanding of educational pedagogy. You will apply these skills as you develop and deliver lecture and lab content in a classroom setting. Instructor consent required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**ANAT 6600 - Experimental Design and Research Methods (1 Credit)**

In this course, students will foster and apply strategies that enable critical evaluation of any published research (including basic, clinical, and educational), as well as develop the skills necessary to conduct and appropriately analyze their own research data.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6750 - Special Topics: Modern Human Anatomy (1-6 Credits)**

This course is offered in a variety of technical and thematic areas in modern human anatomy. The specific topics vary from year to year. Note: This course includes lectures, discussions and workshops.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6840 - Independent Study (1-6 Credits)**

This course enables the student to pursue an investigation in a modern human anatomical field of choice toward completion of a capstone project with relatively minor supervision from faculty advisors.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6910 - Teaching Practicum (1-4 Credits)**

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Prereq.: ANAT 6412. Course restricted to ANAT majors.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6911 - Advanced Teaching Practicum (1-4 Credits)**

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Pre-requisite: ANAT degree-seeking student; ANAT 6412

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6931 - MSMHA Internship (1-6 Credits)**

The internship provides hands-on learning opportunities and practical experience for graduate students in institutions related to anatomical sciences, imaging, technology/biotechnology, innovation, and entrepreneurship. Restricted to ANAT students only

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**ANAT 6950 - MSMHA Capstone Project (1-12 Credits)**

The Capstone project is a scholarly and/or research-based pursuit of knowledge and content development in the area of anatomical sciences, modern imaging and modeling technologies, and educational science completed as part of the MS in Modern Human Anatomy. Prerequisite: Must be ANAT degree-seeking student.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**BSBT 6060 - Special Topics in Biomedical Science & Biotech (1-3 Credits)**

Special topics of interest to graduate students in the biomedical sciences and biotechnology fields.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

Typically Offered: Fall, Spring, Summer.

**BSBT 6061 - Project Management (2 Credits)**

Provides training in initiating, executing & closing a project, including the management of scope, time, cost, human resources, communication, risk and more. Highly interactive intensive course prepares students for Certified Project Management exam (internationally recognized certification). Taught by Project Management Professional.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6062 - Principles & Strategies of Effective Teaching (1 Credit)**

Introduces students to research-based, student-centered pedagogies and instructional design techniques. Encourages students to view teaching as an intellectual endeavor. Learn about useful resources for future teaching and formally document pedagogical knowledge and skills for employability. Intensive 1-credit course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6063 - Speaking & Presenting for Scientists & Educators (1 Credit)**

Science Communication in the form of speeches and presentations is essential to the research endeavor. The course will increase your effectiveness to deliver scientific, medical, or educational presentations in an audience-centered and impactful way; to respond to audience questions; and to facilitate audience engagement & discussion.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6064 - Scientific Writing (1 Credit)**

Taught by a biomedical researcher and a professional writing instructor, this 15-hour (3-week) course focuses on developing a framework for successful scientific writing practices, including how to effectively structure arguments, how to write grant proposals and more.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6065 - Case Studies in Responsible Conduct of Research (1 Credit)**

Anyone conducting research using federal funding must study RCR. You'll learn expectations and regulations that permeate science. You'll understand consequences of violations to individuals and society. We'll explore misconduct through interactive video, written and video case studies, and other engaging activities.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.



**BSBT 6066 - Independent Study (1-3 Credits)**

The Course BSBT 6066, Independent Study, with allow graduate students to explore independently new avenues and opportunities that complement their education and training in a way that is otherwise not offered in required or elective courses of the BSBT Program. Enrollment with permission only. Requisite: With permission only

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring.

**BSBT 6067 - Statistics for Biomedical Sciences (2 Credits)**

Learn how and when to apply statistical procedures to answer scientific questions relevant to biomedicine, and how to critically assess statistical data for validity.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6068 - Laboratory Research in Structural Biology (1-6 Credits)**

The Course BSBT 6068, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on structural biology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

Typically Offered: Fall, Spring, Summer.

**BSBT 6069 - Laboratory Research in Immunology and Microbiology (1-6 Credits)**

The Course BSBT 6069, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on immunology and microbiology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**BSBT 6070 - Mini-Research Rotations (1-3 Credits)**

The Course BSBT 6070, Mini-Research Rotations, with allow graduate students to learn in three different laboratories about research in immunology and microbiology.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring.

**BSBT 6071 - Introduction to R Programming (1 Credit)**

Introduction to the statistical programming language R geared primarily to biomedical science students with little to no previous programming experience. Basic features of R as a programming language and as scientific computing platform. Basics of data cleaning, visualization, and analysis.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6072 - Foundations in Biochemistry (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in biochemistry including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6073 - Foundations in Molecular Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in molecular biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6074 - Foundations in Cell Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in cell biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6075 - Foundations in Genetics (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in genetics including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6076 - Research Explorations (1 Credit)**

This course allows for exploration of SBB research labs in a "mini-rotation" format, through meeting faculty, reading literature and participating in lab group meetings and research in order to choose a research lab and prepare a short research proposal.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6078 - Seminar in Immunology and Microbiology (1 Credit)**

This course provides students in the Bioinformatics in Immunology/ Microbiology program an integration of didactic knowledge with research approaches to outstanding questions in the field. Students will attend department weekly seminar followed by structured discussion.

Prerequisites - IDPT 7810 & IMMU 7630

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6110 - Introduction to Biocomputing (3 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic data set. Prerequisite: Undergraduate degree in science, technology, business, engineering or math.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**BSBT 6111 - Introduction to Biomedical Data Practices (2 Credits)**

This course provides students with advance knowledge and topics in every aspects of data science.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**BSBT 6112 - Introduction to Biocomputing (2 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic dataset. Requisite: Must be simultaneously enrolled in BSBT 6113.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6113 - Data Science with R (1 Credit)**

In this 4 weeks semi-independent study course, you will learn how to use the "tidyverse" programming paradigm to perform data science operation using the programming language R. At the end of the course, you will learn the basic understanding of the fundamental elements of data science, including; wrangling, exploration, visualization and modeling.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6310 - Practical Clinical Research Informatics (3 Credits)**

This course provides students with hands on experience in clinical research informatics involving secondary use of electronic health record (EHR) data, clinical informatics databases, and basic clinical data science as preparation for more advanced informatics or data science coursework. Requisite: 008754 A-GRAD

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6801 - Biomedical Entrepreneurship (3 Credits)**

The course addresses the essential elements of bioscience and health innovation and entrepreneurship. Prerequisites: An undergraduate degree in science, technology, business, engineering or math. Cross-listed with ENTP 6801

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**BSBT 6802 - Reg Env of Life Science Innovation - Drug Discovery (1.5 Credits)**

This course is designed to familiarize biomedical scientists and those interested in the business of science with the fundamentals of U.S. and international regulatory affairs regarding drug development. Focus is the development of products, such as drugs, devices, diagnostic tests, and health information software, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6803 - Reg Env of Live Science Innovation - Medical Devices (1.5 Credits)**

This course is designed to familiarize biomedical scientists, those interested in the business of science with the fundamentals of U.S. and international regulatory affairs for biomedical and healthcare products. Focus is the development of products, such as Medical, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6939 - Internship - Technology and Innovation (3-6 Credits)**

The internship provides hands-on learning opportunities for graduate students in institutions related to technology/biotechnology, computer science, engineering, innovation and entrepreneurship. Requisite: (Formerly IDPT 6939) Enrollment with permission only, contact inge.wefes@ucdenver.edu. Instructor Consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**BSBT 6950 - Laboratory Thesis Research (3-6 Credits)**

Laboratory Thesis Research with allow graduate students to engage in laboratory research training in the biomedical science.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**CANB 7600 - Molecular Mechanisms of Cancer (4 Credits)**

This is an advanced course that will focus on mechanisms of cancer initiation and progression. The course will include didactic presentations, primary literature analysis and workshops. The course is open to all graduate students but requires some prior knowledge of Cancer Biology.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CANB 7602 - Special Topics in Cancer Biology (1 Credit)**

Special topics of particular interest to graduate students in the Cancer Biology program. Registration requires department approval. Max hours: 4 credits/4 topics. Requisite: 008754

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**CANB 7610 - Pathobiology of Cancer Mini-Course (1 Credit)**

Provide understanding of clinical issues associated with human cancer. Contains didactic and lab components. The latter will focus on pathology of human tumors at macroscopic/microscopic levels. Students will gain understanding of cancer diagnosis/epidemiology/treatment through student of specific tumor types. Prerequisite: Students are required to take this course twice during their time in the CANB program. IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**CANB 7613 - Research Seminars and Journal Club (1 Credit)**

Current research topics in experimental pathology, virology, and tumor biology. Graduate students and faculty presentations.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7620 - Histophysiology (3 Credits)**

Discussions of cell interactions, tissue physiology, and renewal based upon the histologic cell types and structures present. Where pertinent, pathologic alterations will be introduced to facilitate identification of the important normal functions/structures.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CANB 7640 - Bioinformatics (2 Credits)**

This course introduces basic concepts of bioinformatics needed to perform large-scale genomic data mining. A computer workshop will provide students with the relevant and minimal skills to analyze, access and visualize high-throughput data using open source programs and public databases. Prerequisites: IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809 ; Corequisite: BIOS 6606

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7650 - Research in Cancer Biology (1-10 Credits)**

Research work in cancer biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CANB 7660 - Advanced Topics: CANB (1 Credit)**

The specific topics covered in this course vary from year to year. For Fall 2011 the topic will be "Cancer cells and their environment: how the extracellular milieu influences tumor progression" offered by Dr. Schedin.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7680 - Hypothesis Development and Experimental Design (3 Credits)**

Students will discuss recent research papers and develop new hypotheses that extend the findings in the papers. Research proposals to test the hypothesis will be written and an oral defense of the proposal will be performed. Prereq: CANB 7600, IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7690 - Grant Writing in Cancer Biology (1 Credit)**

This course will use didactic presentations and writing workshops to develop a fellowship grant in the NIH style. Focus will be on grantsmanship, persuasive writing and the peer review system. This course will run consecutively with CANB7600. Corequisite with CANB 7600

Grading Basis: Letter Grade

Typically Offered: Spring.

**CANB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in cancer biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CAND 6940 - Candidate for Degree (1 Credit)**

Prereq: Consent of Instructor.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 6060 - Systems Analysis and Design (3 Credits)**

Collaborative offering with Denver Campus, emphasizing information requirements analysis, logical system specification, detailed system design. Topics include structured system development methodologies, prototyping, file design, systems architecture, systems testing, software design strategies. Students use case tool to develop system specifications.. Crosslisted: ISMG 6060.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6080 - Database Management Systems (3 Credits)**

Offered as a collaborative offering with UCD, this course focuses on the development and management of database systems to support business operations. Important subjects include semantic data modeling, normalization, SQL, fourth generation languages, and client-server database applications. Crosslisted: ISMG 6080.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6210 - Research Seminars in Clinical Science (1 Credit)**

This course provides an overview of the types of clinical translational studies being conducted by senior CLSC doctoral students. The interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages of training, mentors and faculty.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6211 - Immersion in Community Engagement (3 Credits)**

The course focuses on community-based participatory research, community engagement and understanding health disparities through a community immersion experience. Restrictions: Students need to contact the CLSC program prior to registering.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CLSC 6260 - Conducting Clinical Trials for Investigators (2 Credits)**

Course is for investigators conducting clinical trials. Course covers good clinical practices/regulations that surround setting up and running clinical trials. Clinical studies and popular press articles highlighting what can go wrong in clinical trials will be reviewed and discussed.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**CLSC 6270 - Critical Appraisal Seminars in Clinical Science (1 Credit)**

This course provides an overview of the approaches for critically appraising common study designs published in the clinical and translational sciences literature, as well as other sources of information.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

CLSC 6300 - Scientific Grant Review Process: CCTSI Proposals MS (1 Credit)

Students will understand and participate in the process of scientific review of human subject research protocols submitted to the University of Colorado Denver Clinical Translational Research Centers at University Hospital and The Children's Hospital. Prereq: BIOS 6601, BIOS 6602 (or BIOS 6611, BIOS 6612) & CLSC 7500.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

CLSC 6550 - Applications of Biostatistics to Clinical Research Questions (1 Credit)

Introduction to allow clinician-scientists to be critical consumers of medical literature by improving their ability to discuss statistical issues about their own research and research of others. Familiarity will be gained with commonly used statistical methods and statistical terms.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

CLSC 6560 - Designs and Mixed Methods in Implementation Research (2 Credits)

This course provides an in-depth examination of study designs, comparative effectiveness research, and qualitative, quantitative and mixed methods approaches to dissemination and implementation research. The focus is application to health care and public health settings.

Grading Basis: Letter Grade

Typically Offered: Fall.

CLSC 6580 - Qualitative and Mixed Methods in Health Research (3 Credits)

This course provides an in-depth examination of qualitative and mixed methods approaches that are pertinent to health research.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 6585 - Power for Multilevel & Longitudinal Studies (2 Credits)

Course covers power and sample size methods for longitudinal and multilevel study designs. Software used for this course is free, open-source, web-tablet and smart phone-based ([www.glimmpse.SampleSizeShop.org](http://www.glimmpse.SampleSizeShop.org)). This is a three-day intensive and interactive course with online discussion the two weeks following the intensive. Prerequisites: BIOS 6601 and BIOS 6602 or equivalent applied statistic courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 6590 - Navigating the Clinical Research Regulatory Maze (1 Credit)

This is a seminar series covering regulatory requirements and best practices related to FDA audits, billing, collaborative/team research, and distinguishing research from quality improvement projects. Prerequisites: For students with no clinical research experience, it is recommended they take "Getting Started: your introduction to Clinical Research" a 3 hr. lecture as one of their optional lectures, preferably before the course starts or within first 2 months of the course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

CLSC 6608 - Statistics for the Basic Sciences - CLSC Supplement (1 Credit)

This course provides an overview of epidemiology, logistic regression, and survival analysis, techniques that apply to many areas of clinical research. Coreq: CLSC 6606 (BIOS 6606) Restrictions: Enrollment in CLSC graduate program or permission of the instructor.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 6650 - Guided Research Tutorial - Masters (1-3 Credits)

An independent study course developed by the student and the appropriate faculty member based on the area of study. Students meet regularly with the selected course instructor, the student and course instructor will develop a course plan prior to registration.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 6653 - Key Concepts in Neurodevelopmental Disabilities I (2 Credits)

Course represents part one of two-part interdisciplinary course series focused on systems, options for diagnosis/assessment and alternatives for service provision related to children/youth/young adults with neurodevelopmental and related disabilities and their families to address this population's special health care needs. Prereq: A degree in healthcare profession or related field or instructor consent.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

CLSC 6654 - Key Concepts in Neurodevelopmental Disabilities II (2 Credits)

This course represents part two of a two-part interdisciplinary course series focused on service provision, intervention strategies and service provision related to children/youth/young adults with neurodevelopmental and related disabilities and their families to address this population's special health care needs. Prereq: A degree in health care profession or related field or instructor consent and completion of CLSC 6653.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

CLSC 6657 - Cultural Factors in Healthcare (1 Credit)

Online course will introduce the subject of cultural/social determinants of maternal and child health in the present society, including worldviews on health perspectives (wellness versus illness), and address the impact of emerging demographic changes on systems of care. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

CLSC 6658 - Interdisc. Approach to Promoting Early Parent Child Relationships-Part 1: Theory (2 Credits)

Part one of a two-part course series that will examine the theory and research relevant to the assessment of early parent-child relationships as well as the clinical application for interventions across disciplines that are intended to promote/improve child health outcomes. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CLSC 6659 - Interdisc. Approach to Promoting Early Parent/Child Relationships- II Measurements (3 Credits)**

Part two of a two-part course that will examine research relevant to assessment of early parent/child relationships, identify intervention strategies by analyzing observational findings, as well as evaluate effectiveness of interventions across disciplines intended to promote/improve child health outcomes. Prereq: A degree in health care profession or related field or instructor consent. Completion of CLSC 6658.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6660 - Team/Consult/Leadership 1 (2 Credits)**

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**CLSC 6661 - Leadership Dialogues I (2 Credits)**

This interdisciplinary leadership course focuses on leadership strategies needed for providing family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6662 - Leadership Dialogues II (1 Credit)**

This interdisciplinary leadership course focuses becoming change agents to better provide family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: a degree in health care profession or related field or instructor consent.

**CLSC 6661**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CLSC 6663 - Intervention for Individuals with Developmental Disabilities (3 Credits)**

This interdisciplinary course reviews evidence-based practices in intervention for children with autism and other neurodevelopmental disorders, presented through lectures, critical readings of the literature, case discussions, and case presentations. Prereq: Degree in health care profession or related field or consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6664 - Leadership Dialogues III (1 Credit)**

This interdisciplinary leadership course focuses on leadership strategies needed for provided family- centered, culturally competent, community-based services for children with special needs and their families. Prereq: Degree in health care profession or related field or consent of instructor.

Restrictions: Nursing only.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CLSC 6665 - Leadership Dialogues IV (1 Credit)**

Leadership Dialogues IV builds upon skills addressed in Leadership Dialogues III with the addition of content that integrates critical and systems thinking and ethical decision making with the leadership and team concepts and skills developed in LD III. Prereq: Degree in health care profession or related field or consent of instructor and CLSC 6664.

Restrictions: Nursing only.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6668 - Screening/Assessment for Children/Youth with Autism/Neurodevelopmental Disabilities (3 Credits)**

This interdisciplinary course presents best practices in screening/assessment for autism, focusing on: identification of symptoms of autism; differentiation of autism from other disorders; recognition of symptoms; examination of culture on clinical presentation; and approaches to share observations. prereq: a degree in health care profession or related fields (or consent of instructor).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6699 - Masters Research Project: Publishable Paper (1-6 Credits)**

During course students working with his/her research mentor and research project committee to plan, execute, write Final Research Project in form of a publishable paper. In addition, students prepare for Final Research Project Examination. This is a capstone course. Prerequisite: Consent of program. BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612, CLSC 7150, EPID 6630.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 6750 - Designing for Dissemination and Sustainability (2 Credits)**

This course is one of three that focuses on dissemination and implementation research. This course reviews the organization and financing of interventions for health care systems and public health systems. The role of ethics, evidence and health equity are examined.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CLSC 6770 - Implementation Science Grant and Article Funding (2 Credits)**

This course provides an in-depth examination of issues in submitting successful grant proposals in Dissemination & Implementation research. The course will build upon good general practices in grant and manuscript preparation and submission.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CLSC 6800 - Introduction to Health Information Technology (3 Credits)**

Course intended as overview to dynamic environment of healthcare informatics. The goal of course is to prepare healthcare professionals to better utilize/manage the emerging communication technologies. A brief introduction to e-health, telehealth, electronic medical records, telecommunications and bio-informatics is provided.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 6820 - Management of Healthcare Information Technology (3 Credits)**

This course will provide an introduction to management of information technology in healthcare. A description of information processing, the origin, content and evolution of healthcare information systems and the methodologies deployed to acquire and manage information requirements will be discussed. Crosslisted: HLTH 6072.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.



**CLSC 6850 - Adv Topics: Dissemination and Implementation Sci (1 Credit)**

Provides an overview of intermediate and advanced dissemination and implementation (D&I) science research methods in a small group discussion format. This interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**CLSC 6950 - Masters Research Project: Thesis (1-6 Credits)**

During this course students plan, execute, and write the Final Research Project in the form of a Masters thesis. In addition, students will prepare for the Final Research Project Examination. This is a capstone course.

Pre-requisite: CLSC 7653

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 7101 - Grant Writing I (1 Credit)**

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601 and EPID 6630. Course

Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7102 - Grant Writing II (1 Credit)**

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601, EPID 6630, CLSC 7101.

Course Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)**

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 7202 - Clinical Outcomes and Applications (3 Credits)**

This course focuses on research methodologies in clinical care, costs, health systems, policy, and health outcomes, as well as an overview of major issues in clinical outcomes research. Students are provided with both theory and application through case studies.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 7300 - Scientific Grant Review Process: CCTSI Proposals (1 Credit)**

Students will understand and participate in the process of scientific review of human subject research protocols submitted to the University of Colorado Denver Clinical Translational Research Centers at University Hospital and the Children's Hospital. Prereq: BIOS 6601 BIOS 6602 or BIOS 6611 and BIOS 6612.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CLSC 7500 - Practical Application of Molecular & Cell Biology Techniques for Clinical Investig (3 Credits)**

Designed to teach clinical investigators basic molecular and cellular biology techniques. Format will be hands-on with lectures designed to illustrate significance and clinical application of techniques. Weekly special topics lectures will cover cutting-edge technologies and their application.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**CLSC 7650 - Guided Research Tutorial - Doctoral (1-3 Credits)**

This is an independent study course developed by student and appropriate faculty member based on area of study. Students meet regularly with selected course instructor. The student and course instructor will develop course plan prior to registration of the course. Prereq: Consent of program approved course plan closed registration.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 7653 - Dissemination and Implementation Research in Health (3 Credits)**

Introduces dissemination and implementation (D&I) research and practice in the context of health (i.e. translational research in health). This is a graduate level course and students should have a working understanding of study designs and statistics.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**CLSC 7663 - Context & Adaptation in D&I Research (2 Credits)**

This course covers concepts, frameworks, and methods for understanding and assessing context and guiding adaptations as relevant to dissemination and implementation (D&I) health research and practice. Prerequisite - CLSC 7653.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 8990 - Doctoral Thesis (1-10 Credits)**

This course involves the student working with his/her research mentor and research project committee develop, design and execute a clinical science doctoral study as well as to write up the project as a thesis. Prerequisite: Program consent. BIOS 6601 or BIOS 6611, BIOS 6602 or BIOS 6680 and HSMP 6617, CLSC 7150, EPID 6630, BIOS 6648 or EPID 6626 or HSMP 6670. Restrictions: Only CLSC PhD students or collaborative CLSC and CSPH Health Services Research Students.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CPBS 7001 - Computer Science for Biologists (5 Credits)**

This course is an introduction to the fundamental concepts of computer science, the central ideas of computing, and the practices of computational thinking; designed for the basic science PhD programs. It will engage students in activities that allow them to competently apply CS tools to their field.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CPBS 7605 - Ethics in Bioinformatics (1 Credit)**

Discussions of professional conduct, social implications of research and questions raised by biomedical research, with an emphasis on topics relevant to computational biologists. Active student participation is required. Offered every other year.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**CPBS 7606 - Statistics for the Basic Sciences (3 Credits)**

This course provides an overview of fundamental concepts in statistics such as hypothesis testing and estimation and it provides an overview of statistical methods (for example, regression and analysis of variance) that apply to many areas of science. Crosslisted Course: BIOS 6606.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CPBS 7620 - Advanced Genome Analysis (2 Credits)**

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, microbiome analysis, functional genomics, ethics.

Crosslisted Course: HMGP 7620, STBB 7620, and MICB 7620

Grading Basis: Letter Grade

Typically Offered: Spring.

**CPBS 7630 - Computational Methods for Data Challenges in Biomed (3 Credits)**

Covers three computational data modules: Bioinformatics, Clinical Informatics, and Public Health Informatics. Cases are from three biomedical big data initiatives; the Grand Opportunity Exome Sequencing Project (GO-ESP), The Cancer Genome Atlas (TCGA), and Library of Integrated Network-Based Cellular Signature (LINCS). Prerequisite: CPBS 7711 & CPBS 7712

Grading Basis: Letter Grade

Typically Offered: Fall.

**CPBS 7640 - Bioinformatics in Linguistics (3 Credits)**

This course will be structured around understanding problems, understanding algorithms, and working through solutions from bioinformatics, computational biology, natural language processing, and linguistics. Prerequisite: CPBS 7711; corequisite: CPBS 7712

Grading Basis: Letter Grade

Typically Offered: Spring.

**CPBS 7650 - Research in Computational Bioscience (1-5 Credits)**

Research work in Computational Bioscience. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 7655 - Statistical Methods in Genetic Association Studies (3 Credits)**

This course is designed to give an introduction to statistical methods in genetic association studies. Topics include an introduction to population genetics topics relevant to genetic association studies, design strategies, and analysis methods for case-control and family data. Prereq: BIOS 6612 or permission of instructor. Crosslisted Course: BIOS 6655.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CPBS 7659 - Statistical Methods in Genomics (3 Credits)**

This course will give an introduction to statistical methods for analyzing molecular sequences and genomic data. Topics include hidden Markov models for sequence alignment, molecular evolution and gene expression data analysis. Prereq: BIOS 6611 or equivalent graduate level statistics course with consent of instructor. Crosslisted Course: BIOS 6659 (sponsoring department) / BIOS 7659

Grading Basis: Letter Grade

Typically Offered: Spring.

**CPBS 7660 - Analysis of Genomics Data Using R and Bioconductor (2 Credits)**

This course provides students with hands on experience in solving real life biological problems using the statistical software R and Bioconductor. Students will work and communicate with participating researchers and clinicians on their case studies of genomics data. Pre/Corequisite BIOS 6602 or 6612, or consent of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**CPBS 7711 - Methods and Tools in Biomedical Informatics (4 Credits)**

An introduction to algorithms for the theory and practice of bioinformatics and computational biology. Topics include: 1) Experimental design; 2) Statistical concepts; 3) Sequence alignment; 4) networks and systems biology.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CPBS 7712 - Research Methods in Biomedical Informatics (4 Credits)**

This course focuses on application of algorithms to analysis of different types of big data and provides training in how to plan, develop, execute and report on research in computational biology. Topics include: 1) Molecular Data; 2) Biomedical data; 3) Drug/disease data.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CPBS 7785 - Independent Study in Computational Bioscience (1-3 Credits)**

This course is listed for the benefit of the advanced student who desires to pursue one or more topics in considerable depth. Supervision by a full-time faculty member is necessary. Prerequisite: Permission of Instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 7791 - Readings in Computational Bioscience (1 Credit)**

A seminar course in which students read and present recent publications from the primary computational bioscience literature. Prereq: Consent of instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 7792 - Special Topics in Computational Bioscience (1-3 Credits)**

Topic varies by semester. Designed to give students a chance to evaluate critically some practical or theoretical problem under faculty supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prerequisites: Permission of Instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral Thesis work in Computational Bioscience. Prerequisites: Permission of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CSDV 7000 - Cells, Stem Cells, and Development: Advanced Topics Discussion (1 Credit)**

This course is a student-led paper discussion focusing on advanced topics pertaining to cell biology, stem cells, and developmental biology. Students will select, present, and discuss primary articles on diverse topics within these fields. Restriction: Students in the CSD program only, 2nd year and beyond.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CSDV 7100 - Advanced Writing Workshop (1 Credit)**

This course is a student-led writing workshop focusing on developing writing skills through submission, editing, and discussion of drafts. Draft types will be chosen by the students enrolled and will include manuscripts, these, and documents related to career development. Students must have completed/passed their comprehensive exam in respective program; priority to CSDV PhD students.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**CSDV 7605 - Stem Cells and Development: An Integrated Approach (3-4 Credits)**

Integrative introductory course incorporating the related fields of Cell Biology/Developmental Biology/Stem Cells. Through lectures, contemporary literature discussions, student presentations, enrollees will gain a sophisticated understanding of the biological concepts/experimental approaches underlying current understanding of cell, developmental, and stem cell biology. Pre-Requisite: IDPT 7806

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CSDV 7606 - Critical Analysis of Research in CSD (3 Credits)**

First-year students will learn to critically evaluate scientific literature in preparation for writing and critiquing research grant proposals.

Primary literature will focus on cell and developmental biology related to CSDV 7605. Each session concludes with written mini-proposals and peer critiques. For CSDV & BSP first year students. If possible, limit to CSDV-PHD and BMSC-PHD plans. Else: Prerequisite: IDPT 7806 & 7810; Corequisite: CSDV 7605

Grading Basis: Letter Grade

Typically Offered: Spring.

**CSDV 7607 - Genetics of Development, Disease, and Regeneration (2 Credits)**

Course participants will read, present and discuss scientific literature addressing topics in developmental, disease, and regenerative genetics. The course will be organized into 4 blocks, with each block focusing on one topic. Prerequisite - CSDV 7605

Grading Basis: Letter Grade

Typically Offered: Spring.

**CSDV 7650 - Research: CSDV (1-5 Credits)**

Research work in cell biology, stem cells and development. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CSDV 7670 - Advanced Topics: CSDV (2 Credits)**

Spring/Summer, 2019 Course is an introduction to concepts and practice of organ and tissue modeling using adult stem cell organoid culture systems. Lectures/article reviews will be balanced with a significant, hands-on lab component to gain experience in organoid culture techniques. Prereq: IDPT 7806, 7810

Grading Basis: Letter Grade

Repeatable. Max Credits: 7.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CSDV 7675 - Practical Teaching Experience in CSDV (1 Credit)**

Students will be paired with a CSD faculty mentor to develop a class session for IDPT 7801 courses directed by CSD faculty, CSDV 7605 or CSDV 7670 (depending on student interest and faculty availability). Each session will include a practice presentation and post-session critique. Open to CSDV students in Year 2+. Prerequisite: CSDV 7605; 2nd year+ CSDV-PhD students only

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring.

**CSDV 7676 - Practical Mentoring Experience in CSDV (1 Credit)**

This course will train students in effective mentoring skills for a research lab setting. Class meetings will be discussion-based, with topics including project design, communication, conflict resolution, creating equitable and inclusive mentoring relationships, and more.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**CSDV 7677 - Science Communication in the Time of COVID (1 Credit)**

Science communication is important for most careers in science. In this class, we will focus on communicating science to the general public through oral presentations, humor (Science Riot workshop), discussions, and written articles. During this unusual year, our outreach efforts will be focused on the Covid-19 vaccines.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**CSDV 7850 - Independent Study in Cell Biology, Stem Cells and Development (1-5 Credits)**

Independent Study is to allow students to take professional school course for credit or to gain a defined expertise with faculty mentor other than thesis advisor. Consent of faculty member offering the independent study and Program Director required. Prereq: : IDPT 7806, 7807, 7808, 7809 (BIOM Science Core Courses), and CSDV 7605.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CSDV 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral Thesis work in Cell biology, Stem Cells and Development. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**GENC 6101 - Psychosocial Aspects of Genetic Counseling 1 (2 Credits)**

This is the first course in a two-semester sequence addressing basic psychosocial and counseling theories, approaches, and resources necessary for the provision of genetic counseling to clients and their families in prenatal, pediatric and adult clinical settings. Coreq: GENC 6105, GENC 6110. Restrictions: Matriculated students in Genetic Counseling MS Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6102 - Psychosocial Aspects of Genetic Counseling II (2 Credits)**

This is the second course in a two-semester sequence addressing basic psychosocial and counseling theories, approaches, and resources necessary for the provision of genetic counseling to clients and their families in prenatal pediatric and adult clinical settings. Prereq: GENC 6101. Co-Req: GENC 6105, GENC 6110. Restrictions: matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6105 - Basic Interviewing Skills (1 Credit)**

This course covers fundamental theories and principles of effective patient/client interviewing in genetic counseling practice. Lectures are combined with hands-on role plays and interviews so that students may gain applied experience and receive feedback to foster skills development throughout course. Coreq: GENC 6101, GENC 6110.

Restriction: Matriculated student in Genetic Counseling M.S. Program

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6110 - Topics in Medical Genetics I (3 Credits)**

First course in a two-part course sequence regarding principles of clinical genetics and genetic counseling and development of clinical skills used in various medical genetics settings. Fall semester focuses on principles important in pediatric and general genetics settings.

Restriction: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6111 - Topics in Medical Genetics II (2 Credits)**

Second course in two-course sequence regarding principles of clinical genetics and genetic counseling used in various medical genetics settings, and development of critical skills. Spring semester focuses on prenatal and adult genetics clinic settings. Prereq: GENC 6110.

Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6120 - Clinical Cytogenetics and Molecular Genetics (3 Credits)**

This course provides integrated instruction regarding human cytogenetic and molecular genetic principles, techniques, and diagnostic testing approaches used in clinical evaluation and risk assessment for genetic disorders/predispositions in prenatal and postnatal patient populations.

Coreq: GENC 6121. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6121 - Laboratory in Clinical Cytogenetics and Molecular Genetics (2 Credits)**

Course provides introduction to specific methodologies and interpretation of studies used in diagnostic cytogenetics and molecular genetics laboratories. Principles discussed in the co-requisite clinical cytogenetics and molecular genetics course will be applied through demonstrations, hands-on experiments, discussion of illustrative cases. Coreq: GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6122 - Seminar in Clinical Cytogenetics and Molecular Genetics (1 Credit)**

Course requires students to apply theories/principles of cytogenetics and molecular genetics to analysis of cases that present in daily operations of diagnostic laboratories and formal critique of current research literature. Additionally, students present formal seminar integrating cytogenetic/molecular genetic principles. Prereq: GENC 6120, GENC 6121. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6125 - Embryogenetics (1 Credit)**

Providing practical knowledge for genetic counseling this course on human embryology is focused on major developmental stages and organ systems with an emphasis on molecular genetic pathways and associated syndromes that arise due to their disruption. Requisite: Matriculated student in M.S. Genetic Counseling Program (GENC).

Grading Basis: Letter Grade

Typically Offered: Fall.

**GENC 6130 - Cancer Genetics and Genetic Counseling (2 Credits)**

Course in providing genetic counseling services to clients with or at risk for hereditary cancer predisposition. Topics include clinical oncology, epidemiology, molecular biology of cancer, risk assessment, genetic testing, ethical/legal issues, clinical research considerations, psychosocial impact/support, specific genetic counseling approaches.

Prereq: GENC 6110, GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6140 - Human Inborn Errors of Metabolism (2 Credits)**

Course provides systematic review of major metabolic disorders, including their clinical phenotypes, diagnosis, and management. Physiological and laboratory testing principles important to understanding these disorders will be reviewed. Psychosocial impact of metabolic disorders and genetic counseling approaches will be discussed. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6150 - Congenital Malformations and Disorders of the Newborn (1 Credit)**

This survey course covers common major malformations and non-metabolic genetic disorders identified by newborn screening programs. Clinical phenotypes, diagnosis, management and etiology are addressed. Psychosocial impact of these conditions and genetic counseling approaches will be discussed. Prereq: GENC 6110. Co-Req: GENC 6111.

Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6170 - Introduction to Clinical Research for Genetic Counseling Students (1 Credit)**

An introduction to clinical research including an overview of ethical principles, study methods and designs, practical execution, data analysis and presentation of results. Possible roles of a genetic counselor in the conduct of clinical research will be a course focus. Restrictions: Matriculated student in MS Genetic Counseling Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6201 - Advanced Psychosocial Genetic Counseling (2 Credits)**

This course examines advanced genetic counseling techniques as they relate to psychosocial theories, specific client characteristics and the client/counselor dynamic. Critical discussion of core topics and readings and case analysis will be used for instruction. Prereq: GENC 6101 and GENC 6102. Restrictions: Matriculated second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6210 - Professional Issues in Genetic Counseling I (2 Credits)**

First course in a two course sequence regarding professional practice issues of master's level genetic counselors. The Fall semester course focuses on professional standards, professional ethics, legal principles and health systems and policy issues relevant to genetic counselors. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6211 - Professional Issues in Genetic Counseling II (2 Credits)**

Second course in a two course sequence regarding professional practice issues of master's level genetic counselors. The Spring semester course focuses on disability issues, cultural competency, public health genetics, research methods in genetic counseling, and professional roles. Prereq: GENC 6210. Restrictions: Second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6250 - Risk Calculation in Genetic Counseling (1 Credit)**

This course covers pedigree analysis and risk calculation principles used by genetic counselors in clinical practice. Prereq: GENC 6110, GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6610 - Topic in Med Genetic 1 (3 Credits)**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6910 - Applied General Genetics Clinic (3 Credits)**

This is a clinical rotation for Genetic Counseling M.S. students through a general genetics clinic serving a variety of referral indications. Students will learn and practice case management, history taking, risk assessment, counseling and client advocacy skills. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6911 - Applied Prenatal Genetics Clinic (3 Credits)**

This is a clinical rotation for genetic counseling students through a prenatal diagnosis and genetics clinic. Students will learn/practice history taking, risk assessment, patient education and genetic counseling, case management, as well as observe prenatal diagnosis and Art procedures. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.



**GENC 6912 - Applied Metabolic Genetics Clinic (3 Credits)**

This is a clinical rotation for genetic counseling students through a genetics clinic for inborn errors of metabolism. Students will work with patients referred for diagnostic evaluation, medical/nutritional management of specific conditions, and follow-up of positive newborn metabolic screening results. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program. Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**GENC 6913 - Applied Regional & Specialties Genetics Clinics (1-2 Credits)**

This is a clinical rotation for genetic counseling students through regional outreach genetics clinics and specialty/multidisciplinary clinics serving patients with various genetic conditions. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**GENC 6914 - Applied Hereditary Cancer Clinic (1-3 Credits)**

This is a clinical rotation for genetic counseling students through a hereditary cancer clinic for individuals seeking genetic counseling and testing for genetic cancer predisposition syndromes. Prereq: GENC 6110, PEDS 6601, PEDS 6602. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**GENC 6915 - Applied Adult Medical Genetics Clinic (1 Credit)**

This is a clinical rotation for genetic counseling students through a medical genetics clinic and clinical research settings providing diagnosis, management, risk assessment and genetic counseling for adults. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**GENC 6919 - Applied Medical Genetics Clinic - Clinical Elective (1-3 Credits)**

This is an elective clinical rotation for genetic counseling students desiring to arrange training in outside of core required clinical rotations or an additional, advanced rotation. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**GENC 6920 - Applied Medical Genetics-Laboratory Genetic Counseling Elective (1 Credit)**

An elective rotation for students desiring an advanced, applied training experience with genetic counselors based in a genetics diagnostic laboratory. Restrictions: Matriculated student in GENC program who has completed required prerequisite courses listed; Permission of instructor. Prereq: GENC 6120; GENC 6121; GENC 6122

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6940 - Capstone in Genetic Counseling (1-2 Credits)**

Students will develop a proposal and complete an individualized scholarly project that contributes to the knowledge and/or practice of genetic counseling. GENC matriculated student with 2 semesters required coursework completed. Permission of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6950 - Master's Thesis (1-6 Credits)**

Masters thesis research to be arranged with prior approval of the Graduate Program in Genetic Counseling. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**HEHE 5000 - Foundations of Health Humanities (3 Credits)**

This course explores the relationships among health, medicine, and society as well as the representations of illness, suffering, disability, and death through the lens of literature, the arts and philosophy, paying particular attention to power relationships and categories of difference.

Grading Basis: Letter Grade

Typically Offered: Fall.

**HEHE 5100 - Foundations of Health Care Ethics (3 Credits)**

This course provides learners with an opportunity to explore the foundations of health care ethics. The material will cover several different ethical frameworks, with an eye to application to practical problems of health care and population health.

Grading Basis: Letter Grade

Typically Offered: Spring.

**HEHE 5250 - Topics in Media, Medicine and Society (3 Credits)**

This interdisciplinary course will explore the interconnections and intersections between medicine and media, investigating a significant collaborative enterprise that characterizes American culture.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**HEHE 5350 - Narrative Principles and Practices in Healthcare (3 Credits)**

This course introduces students to the intellectual and clinical discipline of narrative work in healthcare. Students will explore the theoretical foundations of narrative in healthcare and participate in structured workshops to improve close reading of texts and writing skills. Requisite: 008754

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**HEHE 5450 - Addressing Health Stigma in Social Contexts (3 Credits)**

This interdisciplinary course will equip students with the tools needed to understand health stigma, to construct an explanation as to why it is so common and to explain what, if anything, should be done to address such stigma. Requisite: 008754

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**HEHE 5550 - Independent Study in Health Humanities & Health Ethics (1-3 Credits)**

This independent study will permit students to pursue specialized topics and/or previously studied topics in health humanities and health ethics in greater depth and with more flexible scheduling. Requisite: 008754

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**HEHE 5650 - Ethics, Medicine & the Holocaust: Legacies (3 Credits)**

German health professionals – especially physicians, but also nurses, dentists, pharmacists, midwives and public health practitioners – developed and led some of the most heinous activities of the Third Reich. Why? And what are the legacies of this history for medicine and society today?

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**HEHE 5655 - Introduction to Public Health Ethics (3 Credits)**

This course provides learners with an introduction to public health ethics. The material explores differences between public health ethics & health care ethics, important frameworks used in public health ethical analysis, and significant practice in analyzing public health ethics cases.

Grading Basis: Letter Grade

Typically Offered: Fall.

**HEHE 5750 - Pain, Its Paradoxes & the Human Condition (3 Credits)**

This course explores the lived experiences of pain, its paradoxes, and the extent to which it is a key feature of the human condition. Analyses will be drawn from history, religious studies, philosophy, literature, poetry, public health, medicine, and law.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**HEHE 5850 - Clinical Ethics (3 Credits)**

The course will introduce students to the theory, methods, history and application of clinical ethics through a broad overview of relevant theory and literature and through deep discussion of notable cases in the history of clinical ethics. Prereq: HEHE 5100

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**HMGP 7600 - Survey of Human Genetics (3-4 Credits)**

Survey of human genetics, including Mendelian and other types of inheritance, chromosomes and cytogenetics, molecular and biochemical basis of genetic disease, quantitative genetics and gene mapping, developmental and cancer genetics, clinical genetics, and genetic screening and prenatal diagnosis.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**HMGP 7610 - Topics in Human Genetics (1-3 Credits)**

Two-semester course based on weekly HMGP seminar series. Students meet with speakers and discuss seminar or related topics and arranged readings. Grade based on class participation and required paper and presentation. Required for 1st, 2nd and 3rd year HMGP students.

Prerequisite: Graduate standing.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**HMGP 7630 - Independent Study in Human Medical Genetics (1-2 Credits)**

Independent study is intended to permit students to carry out directed reading and discussion with a specific faculty member other than their thesis advisor. Consent of the faculty member offering the independent study and the program director are required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**HMGP 7650 - Research in Human Medical Genetics (1-10 Credits)**

Research work in human medical genetics. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**HMGP 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in human medical genetics. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**IDPT 5600 - Topics in Biomedical Science and Research (4 Credits)**

Research internship for undergraduate fellows in Graduate Experiences for Multicultural Students (GEMS) Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**IDPT 6006 - Obesity and Cardiovascular Disease (1 Credit)**

The course will cover how obesity relates to cardiovascular disease including basic and clinical mechanisms on the pathophysiology of vascular biology, insulin resistance, risk factors, and outcomes, and how therapeutic interventions modify cardiovascular disease risk.

Requirements: Course will span two semesters, Fall and then Spring

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**IDPT 7160 - Philosophical Foundations of Research Ethics (2 Credits)**

This course will examine the philosophical basis for current research ethics practices, address current ethical issues and controversies in biomedical research, and provide students with knowledge and analytical skills to address the ethical dimensions of biomedical research.

Crosslisted: CLSC 7160

Grading Basis: Letter Grade

Typically Offered: Spring.

**IDPT 7200 - Scientific Writing for Doctoral Students (2 Credits)**

Scientific writing course for students engaged in research. Focuses on critical thinking, analytical writing, and oral presentation. Taught as a writing workshop, the course emphasizes effective communication with both professional and non-technical audiences. Restrictions: Must have passed preliminary examination; permission of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IDPT 7301 - Introduction to Life Science Technology Commercialization (1-3 Credits)**

Course designed to familiarize graduate level engineering, business, law, science students with fundamentals of life science technology commercialization including drugs, devices, diagnostics, healthcare IT and platform applications. Three consecutive, 5-week classes, each 1 credit. Open to all graduate level students.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring.

**IDPT 7642 - Introduction to Laboratory Animal Research (1 Credit)**

Provides basic knowledge on the use of laboratory animals, animal welfare and animal models. Includes general concepts on animal biology and husbandry for most common laboratory species and incorporates essential principles of anesthesia, analgesia, surgery and peri operative care.

Grading Basis: Letter Grade

Typically Offered: Summer.

**IDPT 7646 - Tissue Biology and Disease Mechanism (3 Credits)**

This course provides an overview of organ systems and through 1) a survey of the major systems, including the cellular and molecular mechanisms underlying their function and repair, integrated with 2) common diseases, current therapies, and their mechanistic basis. Prereq: IDPT 7811, 7812, 7813, 7814, 7815 (BIOM Sci Core Courses).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IDPT 7651 - MSTP Summer Research Rotation (1-3 Credits)**

This course is an 8-10 week laboratory rotation experience in an MSTP training laboratory. Prereq: Acceptance into the MST Program and permission of MSTP Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**IDPT 7850 - Independent Study in Bioethics, Medical Humanities or Health Law (1-6 Credits)**

Course is designed to meet the needs of students interested in conducting advanced studies of issues and topics in bioethics, medical humanities, or health law. Students will work under the direction of the course director on a specific research topic. Course Restrictions: Permission of the instructor. Repeatable for credit within the degree program, but not within the same term. Max credits - 6.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IDPT 8890 - Clinical Experience for CTSI PhD Students (1 Credit)**

Each student will identify a clinician mentor who will develop/direct clinical experience tailored to student's thesis research. It may include participation in relevant clinical conferences, a direct clinical experience, clinical research, and preparation of a clinical research protocol. Prereq: IDPT 7805 & 7646, EPID 6630, BIOS 6601 or equivalent. Restrictions: PhD Graduate Students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IMMU 6110 - Introduction to Bioinformatics (1.5 Credits)**

An intensive course aimed to introduce basic theory and concepts of commonly used bioinformatics workflows encountered in immunology and microbiology NGS data sets. This course is also designed as a workshop; all workflows will be directly applied to pre-existing datasets. Pre-requisite: At least one semester of any R programming.

Grading Basis: Letter Grade

Restricted to IMMU, MICB, MICR, BSBT students

Typically Offered: Spring.

**IMMU 6210 - Intensive Advanced Immunology (3 Credits)**

During this intensive-style class, students will attend daily lectures and laboratories in Week 1, then complete a 2-week project with final presentations in Week 3. In Week 1, Students will be fully immersed from 8 am to 6 pm with reading/prep in the evenings. Pre-requisite: AGRAD

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7530 - Introduction to Immunology (2 Credits)**

This course is an introductory immunology course designed to provide students with an introduction to the field of immunology. This class is intended to introduce students who already have some background in general biology and cell biology to the study of the immune system.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7602 - Special Topics in Cancer Immunology (1 Credit)**

This interactive course aims to introduce important concepts, models and approaches in cancer immunology. The focuses are mechanisms relevant to the immune response in the context of cancer development and immunotherapy. Students are assessed via presentations, participation, and a paper.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IMMU 7603 - Special Topics-Immunologic Basis of Human Disease (1 Credit)**

Perform translational studies, as they either test hypotheses established in mouse models or lead to new testable hypotheses that will advance understanding of pathogenesis of human disease. Greater understanding of disease pathogenesis will allow for development of new treatment options. Prereq: IMMU 7662.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IMMU 7604 - Special Topics in Signal Transduction in the Immune System (1 Credit)**

In-depth course, designed primarily for immunology graduate students in their second year, who have completed IMMU 7602. The course covers selected topics (8 in all) encompassing a wide range of topics in signal transduction through receptors important in the immune system. Prereq: IMMU 7662.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IMMU 7605 - Workshop in Scientific Writing (1 Credit)**

This workshop will consist of one session weekly for students to be critiqued on writing assignments designed to provide basic training in writing grant proposals and manuscripts.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7607 - Science as a Profession (1 Credit)**

This course discusses ethical issues, conflicts of interest, and regulations for working with humans or animals. It also includes instruction on writing papers and grants, giving effective presentations and advice on finding jobs in academia and industry.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IMMU 7608 - Immunology of Infection (1 Credit)**

Students will discuss and present selections from the current literature on topics related to the interaction of the immune system with microbial causes of infectious diseases.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7609 - Immunology of Autoimmune Diseases (1 Credit)**

Following a brief introduction on autoimmune diseases by the instructor, the students will discuss and present assigned papers from the current literature on topics related to immune mechanisms and cell types leading to various autoimmune diseases.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7630 - Overview of Immunology (2 Credits)**

An overview course in immunology for non-immunology-program graduate students. The focus is human relevance and the practical use of immunology in a variety of fields. Students gain experience applying immunological knowledge to their own area of interest.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IMMU 7650 - Research in Immunology (1-5 Credits)**

Research work in immunology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IMMU 7662 - Immunology (6 Credits)**

This course covers the basic principles of the immune system. Included are discussions on (I) the innate and adaptive immune responses, (II) the molecular and cellular basis of immune specificity and (III) aspects of clinical immunology.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IMMU 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in immunology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**IPHY 6001 - Human Physiology (4 Credits)**

This course in Physiology is designed to provide an understanding of the functions of cells, tissues, and organs in the human body and the overall integration of organ functions in the body as a whole. Course restrictions: B.A. or B.S. including Biology, Chemistry and Physics

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IPHY 7650 - Research in Integrated Physiology (1-10 Credits)**

Research work in Integrated Physiology. Prerequisite: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IPHY 7651 - Reading & Evaluating the Clinical Literature (2 Credits)**

Interactive seminar introduces key concepts in clinical study design, basic statistics, & clinical research assessment. Become familiar with clinical study types; rigorously assess the literature; and appreciate how to incorporate clinical data in bench research. Requires presentations, manuscript review, and discussion. Pre-Req: Successful completion of the first year of PhD courses or two years of MSTP training.

Grading Basis: Letter Grade

Typically Offered: Fall.

**IPHY 7652 - Special Topics in Integrated Physiology (1-3 Credits)**

This course provides instruction in a specialized area of Integrated Physiology. Course content and the extent of the course varies from year to year. Prerequisite: Enrollment in PhD Program in Graduate School.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IPHY 7800 - Comprehensive Physiology (6 Credits)**

The course will provide an understanding of the function, regulation and integration of human organ systems. Content will include introductory to cell physiology and all major organ systems and will be taught by experts in each organ system.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IPHY 7801 - Molecular Mechanisms of Reproductive Endocrinology and Metabolism (3 Credits)**

Endocrine systems will be covered from the molecule to the systems level. Pituitary secretions actions/ regulation, regulation of water, ion, calcium balance, regulation of metabolism including insulin secretion/action will be discussed, the context of normal physiology, the mechanisms of endocrine dysfunction. Prereq: Core courses IDPT 7811, 7812, 7813, 7814, 7815. Restrictions: CU-AMC Graduate students; others by permission of the Course Director.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.



**IPHY 7802 - Grant Proposal Writing (1 Credit)**

This course is a practical workshop in grant-writing culminating in a student-led mock review panel including course participants. Students will examine various proposal types/formats, then write their own proposal in the format of an NIH NRSA fellowship application. Pre-Requisite: Students with adequate physiology background.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IPHY 7840 - Advanced Topics in Cell Signaling (1 Credit)**

Students select topics of interest in the area of cell signaling and receive one-on-one instruction from expert faculty. Each one-credit topic will be taught for 5 weeks. Course work will include reading and discussing papers as well as practical exercises. Prereq: Consent of Instructor

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IPHY 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in physiology.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**MICB 7620 - Advanced Genome Analysis (2 Credits)**

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, microbiome analysis, functional genomics, ethics.

Crosslisted Course: CPBS 7620, STBB 7620, and HMGP 7620

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7621 - Genome Analysis Workshop (3 Credits)**

The Genome Analysis Workshop is a hands-on tutorial of skills needed to process large genomics data sets and visualize their results. The class is taught from the standpoint of biologist with practical goals (e.g. to interpret the results of a sequencing-based experiment and gain biologically meaningful insight).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7628 - Viral Pathogenesis (2 Credits)**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

**MICB 7650 - Research in Microbiology (1-10 Credits)**

Research work in microbiology. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**MICB 7701 - Molecular Virology and Pathogenesis (3 Credits)**

Topics in this course include viral structure and genome organization, replication and expression of viral genomes, mechanism of action of tumor viruses, molecular aspects of virus-host cell interactions, animal models of infectious diseases and pathogenesis of human viruses.

Prereq: MICB 7706, MICB 7705 are desirable but not required. Restriction: Permission of Instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7703 - Molecular Mechanisms of Bacterial Disease (3 Credits)**

The course focuses on molecular processes that bacteria utilize to cause disease in humans. The course content will use specific examples from pathogenic bacteria to illustrate common virulence mechanisms utilized to initiate, maintain and survive interactions with host cells. Prereq: Recommended Fundamentals of Microbiology Restrictions: Permission of the instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7704 - Host Response to Infectious Disease (1 Credit)**

This interactive graduate course, which provides an overview and specific examples of the host response to infectious disease. Current research and future directions in the field are discussed. Students are assessed via presentations, participation and an exam. Prerequisite: Biomedical Core Courses

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7705 - Medical Microbiology (4 Credits)**

The course will focus on Microbiology, Infectious Diseases. Course content will focus on: pathogenic bacteria, viruses, fungi, parasites; emphasis on microbial virulence determinants, host-pathogen interactions emphasizing host immune responses, signs, symptoms of disease presentation, epidemiology, and diagnosis of infectious diseases. Prereq: Recommended Fundamentals of Microbiology. Restriction: Permission of Instructor. Cross listed: IDPT 6004.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in microbiology. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**MOLB 7650 - Research in Molecular Biology (1-10 Credits)**

Research work in molecular biology. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.



**MOLB 7661 - Molecular Biology Seminar (1 Credit)**

Seminar series provides a forum for the presentation of scientific experiments and information in molecular biology by faculty, postdoctoral fellows, graduate students and invited outside guest speakers.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**MOLB 7800 - Advanced Topics in Molecular Biology (3-4 Credits)**

Course instructs graduate students how to critically evaluate scientific literature. Course in 4 blocks; topics include nucleic acid, chromatin structure, DNA replication, RNA transcription, RNA processing, cell cycle control, genetics of model organisms. Papers chosen by instructors, presentations by students. Prereq: IDPT 7811, 7812, 7813, 7814, 7815. Restriction: By Permission of instructor. Course offered in 4 blocks of 1 hour of credit each.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MOLB 7801 - Rigor and Reproducibility in Biomedical Research (1 Credit)**

Course will integrate the concepts of rigor, repeatability and reproducibility by combining both wet and dry lab components focused on teaching these concepts and laboratory skills. We will seek to make these concepts routine considerations during the design and execution of any type of experiment. Instructor consent required.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**MOLB 7900 - Practical Computational Biology for Biologists: Python (2 Credits)**

Comp. biology class aimed at biology PhD students. Topics covered include: basic practices for coding in python; analysis of standard high-throughput genomic data to study the regulation of gene expression; intro to modeling gene expression; data visualization; communicating computational analysis/results. 3 wks. lecture, lab & recitation

Grading Basis: Letter Grade

Typically Offered: Spring.

**MOLB 7910 - Practical Computational Biology for Biologists: R (2 Credits)**

Comp. biology class aimed at biology PhD students. Topics covered include: basic practices for coding in R; analysis of standard high-throughput genomic data to study the regulation of gene expression; intro to modeling gene expression; data visualization; communicating computational analysis/results. 3 wks. lecture, lab & recitation

Grading Basis: Letter Grade

Typically Offered: Spring.

**MOLB 7950 - Informatics and Statistics for Molecular Biology (4 Credits)**

This course covers the design and analysis of common molecular biology experiments with thorough coverage of statistical and informatic approaches to data analysis. The course begins with a "boot camp" that covers use of shell programming, R/R Studio, and Python scripting in bioinformatics. Pre-Req: MOLB-PhD or CSDV-PhD students only

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**MOLB 8990 - Doctoral Thesis in Molecular Biology (1-10 Credits)**

Doctoral thesis work in molecular biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**NRSC 7501 - Introduction to Neuroscience (1 Credit)**

Introduction to study of the nervous system from the level of the brain to an understanding of how neurons are specialized for communication and information processing. This course is a prerequisite for NRSC 7600 series courses.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**NRSC 7600 - Cellular & Molecular Biology (3 Credits)**

A comprehensive, in-depth, discussion-based course intended for candidates for the Ph.D. in Neuroscience. Topics include ion channel structure and function, ionic basis of the resting and action potential, and the biochemistry and physiology of direct and synaptic transmission.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**NRSC 7610 - Fundamentals of Neurobiology (3 Credits)**

This course will provide basic knowledge on the structure and function of the nervous system. The lectures will be supplemented by discussion of primary research literature in neurobiology. Prereq: NRSC 7600 or equivalent at the discretion of the instructors.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**NRSC 7612 - Nervous System Modeling with NEURON (1 Credit)**

The objective of this course is to introduce students to biophysically accurate modeling of single neurons and neuronal networks with NEURON simulation environment. Students will implement NEURON in a project of their choice, possibly related to their primary 'wet' research.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7614 - Biological Basis of Psychiatric & Neurological Disorders (2 Credits)**

This elective, for basic sciences graduate students and medical students, provides a survey of current clinical and molecular aspects of human neuropsychiatric disorders. Both movement disorders and DSMIV diagnoses will be covered. Contact Course Director for a list of topics.

Prereq: IDPT 7812 or BMGN 5000/CSBI 5001.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7615 - Developmental Neurobiology (3 Credits)**

This course will cover fundamental principles regarding development of the nervous system. The format of the course will consist of lecture plus reading of primary literature. Prereq: IDPT 5004, NRSC 7600 & NRSC 7610.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**NRSC 7616 - Introduction to Biomedical Photonics (3 Credits)**

The course introduces several principles of applying optical techniques to biomedical applications. Current development of biophotonic research, such as microscopy, optical coherence tomography, optical spectroscopic techniques in tissues, will be discussed. Prereq: EE 5802 Optical Engineering. Crosslisted: Electrical Engineering EE 5804.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7617 - The Biophysics of Ion Channels (1 Credit)**

Examination of the mechanisms of ion channel gating. Covers basic of bioelectricity, kinetic analysis of channel gating, microscopic and macroscopic gating, thermodynamics, ion channel structure, ion channel pharmacology, and channelopathies.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7618 - Biology of the Eye (1 Credit)**

Crosslisted with OPHT 6610 (for medical students). The objective of this course is to familiarize students with the core concepts and challenges in ophthalmology and vision research. The course integrates cutting-edge basic science with translational research and clinical advances. Pre-req: Must be a graduate student (not a medical student).

Grading Basis: Letter Grade

Typically Offered: Fall.

**NRSC 7650 - Research in Neuroscience (1-10 Credits)**

Research work in neuroscience. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**NRSC 7657 - MATLAB for Neuroscientists (2 Credits)**

MATLAB is an accessible programming environment that is widely used by scientists and engineers and offers powerful tools for data acquisition and data analysis. Students will develop their own MATLAB programs that are relevant to their particular line of research.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NRSC 7661 - Grant Proposal Writing Workshop (1 Credit)**

Course is practical workshop in grant-writing culminating in a mock review panel including course participants. Students will examine various proposal types/formats, then write their own proposal in the format of NRSA fellowship application. Restriction: Students with adequate neuroscience background. Prereq: NRSC 7610.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**NRSC 7662 - Survey of Neuroscience (1 Credit)**

Designed to expose first year graduate students to current topics in neuroscience.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**NRSC 7670 - Advanced Topics in Neuroscience (1-2 Credits)**

This course will consist of discussion of manuscripts relevant to a specific topic in Neuroscience. Prereq: NRSC 7600 or consent of instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**NRSC 7674 - Quantitative Neuroscience (3 Credits)**

In this course, mathematical models and data processing strategies will be introduced as well as other cutting-edge research techniques to help students understand how these techniques can be applied to solve modern neuroscience problems. Prerequisite: See Instructor. Note: This course is taught Downtown according to the Downtown calendar.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NRSC 7675 - Neuroscience, Ethics, & Philosophy (1 Credit)**

Elective course provides overview of issues at the intersection of philosophy/ethics/neuroscience. Format involves lecture, student presentations, and relies heavily on student discussion. Topics focus on arguments relevant to the philosophy of mind along with their implications for the individual /society. Prereq: Successful completion of first year graduate courses.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**NRSC 7700 - Drugs and the Brain (1 Credit)**

This graduate level course, Drugs and the Brain, will introduce students to the field of addiction. The focus will be on how different drugs of abuse work on brain cells and systems to produce their unique physiological and behavioral consequences.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7800 - Teaching Neuroscience (1-3 Credits)**

Students will be guided in developing two class sessions in systems neuroscience to be presented in the Systems Neuroscience course, NRSC 7610. Each session will include a practice presentation and post-mortem critique. Prereq: NRSC 7610. Restrictions: Second year students in neuroscience or above. Note: Meets 1 - 3 hours a week for 15 weeks depending on credits signed up for.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**NRSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in neuroscience. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PALC 6110 - Basic Pain Assessment & Management: IDT Care (3 Credits)**

This course reviews basic pain pathophysiology, assessment, non-pharmacological interventions, and non-opioid and opioid pharmacological pain management. Integrated with IDT topics related to pain such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6111 - Basic Pain Assessment & Management: IDT Care (AHP) (3 Credits)**

Offered jointly with PALC 6110; reviews basic pain pathophysiology, assessment, non-pharmacological interventions, and non-opioid & opioid pharmacological pain management. Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6120 - Advanced Concepts in Pain Management (3 Credits)**

This course focuses on methadone, opioid infusions, interventional pain management, and other complex modalities. This class focuses on ethics and psychosocial issues including pain in the face of addiction and public policy around opioids and REMS. Prerequisites: PALC 6110 and 6510  
Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6121 - Advanced Concepts in Pain Management (AHP) (3 Credits)**

Offered jointly with PALC 6120; Focuses on safe use of methadone, opioid infusions, interventional pain management, and other complex modalities. This class also covers ethics and psycho-social-spiritual issues related to pain, addiction, and public policy around opioids and REMS. Some thanatology content is tailored for AHP students. Requisite: PALC 6111, 6511, and 6512

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6210 - IDT Care for Symptoms: Part A (3 Credits)**

Course covers the assessment and management of eight common non#pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6211 - IDT Care for Non-pain Symptoms: Part A (AHP) (3 Credits)**

Offered jointly with PALC 6210; assessment/management of eight common non#pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics such as psychological, social & spiritual distress, and ethical standards related to practice. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6220 - IDT Care for Symptoms: Part B (3 Credits)**

This course covers the assessment and management of eight different common non#pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6221 - IDT Care for Non-Pain Symptoms: Part B (AHP) (3 Credits)**

Offered jointly with PALC 6220; covers assessment & management of eight common non#pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6310 - Advanced Illness in Special Settings: Part A (3 Credits)**

Assessment\ management of 8 chronic illnesses (cardiopulmonary, end stage liver and renal diseases) emphasis on early PC combined with disease focused therapy. Attention: prognostication and transitions into palliative/hospice care or discontinuing treatments including bioethical review and IDT support. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6320 - Advanced Illness in Special Settings: Part B (3 Credits)**

Assessment/management of cancer and HIV as chronic illness with emphasis on early palliative care combined with disease focused therapy. Attention to prognostication, transition into palliative/hospice care.

Paired with Spiritual Care review of challenging spiritual issues, hope, miracles and rituals. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6330 - Advanced Illness in Special Settings: Part C (3 Credits)**

Assessment/management of neurodegenerative disorders as chronic illness with emphasis on early palliative care combined with disease focused therapy. Attention to prognostication and transitions into palliative/hospice care. Paired with bioethical review and comfort care for the imminently dying. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6410 - Death & Dying: Unique Role of the AHP (3 Credits)**

This course focuses on methadone, opioid infusions, interventional pain management, and other complex modalities. This class focuses on ethics and psychosocial issues including pain in the face of addiction and public policy around opioids and REMS. For AHP students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6510 - Core Concepts, Principles & Communication Skills (3 Credits)**

Online and on-campus intensive (some physical presence required) on palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Requirement: Restricted to PALC MS or certificate students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6511 - Online: Core Concepts, Principles & Commun. Skills (2 Credits)**

Online discussion of palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Co-Requisite: PALC 6512

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6512 - Intensive: Core Topics, Principles & Commun. Skills (1 Credit)**

On-campus, in-person intensive (physical presence required) discussion of palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Co-Requisite: PALC 6511

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6520 - Communication Skill Refinement: IDT Collaboration (3 Credits)**

Online and on-campus intensive (some physical presence require). Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho#social#spiritual assessment integrated in treatment plans with simulated patients\amilies.

Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6521 - Online: Comm. Skill Refinement: IDT Collaboration (2 Credits)**

Online. Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho#social#spiritual assessment integrated in treatment plans with simulated patients\amilies. Co-Requisite: PALC 6522

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6522 - Intensive: Comm. Skill Refinement: IDT Collaboration (1 Credit)**

On-campus, in-person intensive (physical presence required). Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho#social#spiritual assessment integrated in treatment plans with simulated patients\amilies. Co-Requisite: PALC 6521

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6530 - Palliative Care Integrated in Your Community (3 Credits)**

Online and on-campus intensive (some physical presence required). Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Prerequisites: PALC 6510, PALC 6520, and PALC 6950 or PALC 6960

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6531 - Online: Palliative Care Integrated in Your Community (2 Credits)**

Online. Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Co-Requisite: PALC 6532

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6532 - Intensive: Pall Care Integrated in Your Community (1 Credit)**

On-campus, in-person intensive (physical presence required).

Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Co-Requisite: PALC 6531

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6910 - Systems Topics: Preparation to Capstone (3 Credits)**

Palliative Care Research, Quality Improvement, Health Care Policy and Advocacy and Palliative Care Program development including institutional needs assessment and program planning. Instruction to become a PC Educator, development of professional resilience and role of medical humanities. Prerequisite: PALC 6511/PALC 6512

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6950 - Capstone Project (1-3 Credits)**

MS Palliative Care Capstone Project. Students will design, implement, evaluate, and present the result of a research, QI, education, advocacy, or medical humanities project during year 2 with mentorship from faculty. Results presented at final on-campus course (PALC 6530). Prerequisites: PALC 6910 and PALC 6520

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PALC 6960 - Masters Thesis in Palliative Care (1-3 Credits)**

Masters thesis work in Palliative Care. Final results presented at final on-campus course (PALC 6530). Prerequisite: PALC 6910 and 6520

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PALC 7001 - Comm-Based Hospice and Pall Med Fellowship - A (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**PALC 7002 - Comm-Based Hospice and Pall Med Fellowship - B (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**PALC 7003 - Comm-Based Hospice and Pall Med Fellowship - C (4 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

**PALC 7004 - Comm-Based Hospice and Pall Med Fellowship - D (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

**PALC 7005 - Comm-Based Hospice and Pall Med Fellowship - E (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Spring.

**PALC 7006 - Comm-Based Hospice and Pall Med Fellowship - F (4 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

**PHCL 7600 - Frontiers in Pharmacology (1 Credit)**

Course is intended to introduce students to cutting-edge pharmacology research and to the range of research opportunities available within the Pharmacology Training Program. Pharmacology Department faculty presentations will focus on cellular signaling, molecular mechanisms of drug actions, structure-based drug design.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**PHCL 7602 - Pharmacology Journal Club (1 Credit)**

The overall goal of the course is to teach the students to read and discuss current literature in their field and to gain a comprehensive view of the directions that lead to high-impact research. Students will present and discuss papers.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Typically Offered: Fall, Spring.

**PHCL 7605 - Responsible Conduct of Research (1 Credit)**

The Department of Pharmacology in the University of Colorado School of Medicine organizes and offers an interactive course during the fall semester entitled "Responsible Conduct of Research". The course is designed to inform students, trainees and faculty to the NIH requirements for ethical and responsible research.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**PHCL 7606 - Receptors and Cell Signaling (3 Credits)**

This elective course presents an in-depth treatment of the role of receptors and signal transduction systems in the regulation of cell functions through faculty-presented lectures and student-led discussions of current literature. Prereq: IDPT 7811, 7812, 7813, 7814, 7815.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**PHCL 7609 - Statistical Methods in Pharmacology (3 Credits)**

Introduction to basic statistical methods utilized to analyze scientific data. The goal of course is to provide students in the biological/health sciences with the knowledge/skills necessary to analyze/interpret data which is essential for communicating scientific results. Restriction: Restricted to Pharmacology PhD Students. Crosslisted with BIOS 6606.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**PHCL 7610 - Survey of Bioinformatics Methods (2 Credits)**

What is Bioinformatics and why study it? How is large-scale molecular biology data generated, where and how can researchers gain access to it, and what computational analyses are possible? Crosslisted: CPBS 7710.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**PHCL 7611 - Bioinformatics I (4 Credits)**

What is Bioinformatics and why study it? How is large-scale molecular biology data generated, where and how can researchers gain access to it, what computational analyses are possible and computational techniques for solving inference problems in molecular biology? Prereq: Bioinformatics PhD students or consent of instructor. Crosslisted: CPBS 7711.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**PHCL 7612 - Bioinformatics II (4 Credits)**

Inference problems and computational techniques for molecular biology, with emphasis on machine learning approaches. Use of computational induction techniques on information extraction from biomedical literature, inference of biochemical networks from high-throughput data, and prediction of protein function. Prereq: CPBS 7711. Crosslisted: CPBS 7712.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**PHCL 7613 - Pharmacology Journal Club (1 Credit)**

The overall goal of the course is to teach the students to read and discuss current literature in their field and to gain a comprehensive view of the directions that lead to high-impact research. Students will present and discuss papers.  
Grading Basis: Pass/Fail Only  
Repeatable. Max Credits: 1.  
Typically Offered: Fall, Spring.

**PHCL 7614 - Membrane Biophysics (2 Credits)**

Lectures and homework on ionic mechanisms and underlying cellular excitability, especially in the central nervous system. Descriptive mathematics, pharmacology and molecular biology will be stressed. An introductory application to real-life problems using the NEURON simulation environment will be taught. Prereq: NRSC 7600 or equivalent. Restrictions: 2nd year students with approval of instructor. Crosslisted: NRSC 7614.  
Grading Basis: Letter Grade  
Typically Offered: Spring.



**PHCL 7615 - Grant Proposals in Pharmacology (1 Credit)**

We will learn principles of good grants(wo)manship and hone our skills in homework assignments and discussions. Our goal is to enable a better learning experience during comps proposal writing, by gaining the tools for optimized self-assessment. Prereq: IDPT 7811, IDPT 7812, IDPT 7813, IDPT 7814, IDPT 7815.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7620 - Principles of Pharmacology (6 Credits)**

Lectures are provided in the general areas of pharmacokinetics, receptor theory, structure-activity relationships, drug metabolism, basic pharmacological mechanisms with a particular emphasis on systems such as the nervous system and cardiovascular system, as well as cancer and microbial chemotherapy. Prereq: IDPT 7811, 7812, 7813, 7814, 7815. Restriction: Consent of Course Directors.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHCL 7622 - Principles of Pharmacology for MSTP Students (1 Credit)**

Lectures are provided in the general areas of pharmacokinetics, receptor theory, structure-activity relationships, drug metabolism, and basic pharmacological mechanisms with a particular emphasis on systems such as the nervous system and cardiovascular system, as well as cancer and microbial chemotherapy. Prereq: IDPT 7811, 7812, 7813, 7814, 7815, PHCL 6000. Restriction: Consent of course directors.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHCL 7630 - Molecular Bio Lab Tech PHCL (3 Credits)**

Grading Basis: Letter Grade

**PHCL 7650 - Research in Pharmacology (1-5 Credits)**

Research work in pharmacology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHCL 7660 - Advanced Topics in Pharmacology (1 Credit)**

An in-depth discussion-oriented course for advanced students focusing each term on specific topics associated with pharmacological studies including new insights about drug addiction, alcohol actions and alcoholism memory models and LTP, rational approaches to cancer chemotherapy, cardiovascular physiology. Prereq: PHCL 7600, PHCL 7606, PHCL 7609, PHCL 7620, PHCL 7650. Coreq: IDPT 7811, 7812, 7813, 7814, 7815.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHCL 7801 - Rigor and Reproducibility in Biomedical Research (1 Credit)**

Course will integrate the concepts of rigor, repeatability, and reproducibility by combining both "wet" and "dry" lab components focused on teaching these concepts and laboratory skills.

Grading Basis: Pass/Fail Only

Typically Offered: Spring.

**PHCL 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in pharmacology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**RHSC 7000 - Foundations in Rehabilitation Science (2 Credits)**

This course provides an overview of the field of Rehabilitation Science and an introduction to disablement frameworks with an emphasis on biopsychosocial models of the enabling-disabling process across the life span. Restrictions: Instructor permission required for students not enrolled in the RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**RHSC 7001 - Rehabilitation Science Seminar (1 Credit)**

Students will attend contemporary research seminars presented by established scientists, and will participate in group discussions to assess the implications of seminar topics on the full spectrum of disablement constructs in Rehabilitation Science ranging from pathophysiology to community participation. Prerequisites: RHSC 7000 Foundations in Rehabilitation Science or Instructor Permission. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**RHSC 7002 - Professional Skills in Academia (2 Credits)**

This course provides an overview of instructional methods and professional skills for academic educators and scientists. Topics include instructional methods for graduate education, and development of professional skills in communication, management, networking, and promotion for academic careers in Rehabilitation Science. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**RHSC 7500 - Neurophysiology of Pain (2 Credits)**

This course will review neurophysiologic mechanisms involved in normal and pathologic processing of nociceptive stimuli, and their effects on human movement. Contemporary, evidence-based methods of pain assessment and management will be discussed for research and clinical applications. Prerequisites: Non-degree students must have instructor permission. Prerequisite: NRSC 5100 or NRSC 7600.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**RHSC 7910 - Research Practicum in Rehabilitation Science I (3 Credits)**

This research practicum exposes students to a variety of experimental tools and techniques available to Rehabilitation scientists. Mentored practicum experiences are selected by each student with permission from faculty mentor(s). Prerequisites: Instructor permission. Restrictions: Instructor permission required for students non enrolled in RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 7911 - Research Practicum in Rehabilitation Science II (3 Credits)**

This research practicum exposes students to a variety of experimental tools and techniques available to Rehabilitation scientists. Mentored practicum experiences are selected by each student with permission from faculty mentor(s). Prerequisites: Instructor permission. Restrictions: Instructor permission required for students not enrolled in RHSC program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 8900 - Independent Study in Rehabilitation Science (1-3 Credits)**

This course is designed for the advanced student to pursue one or more Rehabilitation Science topics in considerable depth. Faculty supervision is required. Prerequisites: Instructor permission. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Rehabilitation Science. Prerequisites: Instructor permission. Restrictions: Enrollment in RHSC Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**RPSC 7802 - Reproductive Development (1 Credit)**

Focus of course is developmental biology of reproductive systems. Sex determination, fertilization, implantation, development of placenta and mammary glands will be covered in lectures and discussions of current literature. Course is designed to follow Endocrinology and Metabolism in Spring semester. Prereq: Core Courses IDPT 7811, 7812, 7813, 7814, 7815.

Grading Basis: Letter Grade

Typically Offered: Spring.

**RPSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Reproductive Science. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**STBB 7608 - Molecular Interactions (3 Credits)**

Provides chemical/physical basis for protein structure, folding, function & stability; presents methods/principles of protein/peptide purification & enzyme catalysis including electron transfer & mutagenesis. The role of molecular dynamics & use of molecular simulations in the investigations of protein-ligand/protein-protein interactions. Cross-listed with PHSC 7608.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7609 - Biophysics & Spectroscopy (3 Credits)**

This course will teach fundamentals of modern molecular spectroscopies and biophysical techniques as applied to biomolecules and the structural/dynamic information they afford. Cross listed with PHSC 7609

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7620 - Advanced Genome Analysis (2 Credits)**

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, Crosslisted Course: HMGP 7620, CPBS 7620, and MICB 7620 microbiome analysis, functional genomics, ethics.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7621 - Genome Analysis Workshop (3 Credits)**

A tutorial of skills needed to process genomics data sets and visualize their results. Taught experimentalists with practical goals (e.g. to interpret the results of an experiment and gain biologically meaningful insight). Course is designed to closely mirror HMGP 7620. Restrictions: Students cannot have previously taken MOLB 7620. Cross listed with MOLB 7621.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7631 - Molecular Structure A (1.5 Credits)**

Gain an in-depth understanding of the underlying principles of an NMR experiment, so that student can turn NMR theory into NMR practice for their research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7632 - Molecular Structure B (1.5 Credits)**

Understand the theory and practice of structural determination using x-ray crystallography.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7633 - Molecular Structure C (1.5 Credits)**

The purpose of this course is to provide students with a concise understanding of biological mass spectrometry and its application to study and characterize various classes of biomolecules in state of the art research. Course is 7.5 weeks.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7634 - Molecular Structure D (1.5 Credits)**

The course will provide an introduction to conceptual and practical aspects of macromolecular cryo-electron microscopy (cryo-EM). A combination of lectures and hands-on experiences will give students a working understanding of cryo-EM and its application for structural analysis of biological macromolecules.

Grading Basis: Letter Grade

Typically Offered: Fall.

**STBB 7650 - Research in Structural Biology & Biochemistry (1-10 Credits)**

Research work in Structural Biology and Biochemistry. 2 laboratory hours per week per credit.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**STBB 7660 - Structure Seminar (1 Credit)**

Seminar series provides a forum for the presentation of scientific experiments and information in structural biology by faculty, postdoctoral fellows and graduate students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**STBB 7670 - Independent Study in Structural Biology and Biochem (1-3 Credits)**

This course is listed for the benefit of the advanced student who desires to pursue one or more topics in Structural Biology and Biochemistry in considerable depth. Supervision by a full-time faculty member is necessary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**STBB 7807 - Structural Biol & Biophysics Core Course II (2 Credits)**

Provide first year students enrolled in the core course the opportunity to obtain or review background material in the fields of structural biology and biophysics.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Structural Biology and Biochemistry.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Academic Grievance & Appeals Process

The following procedures address those student appeals and grievances arising from suspension, termination/dismissal, or denial of progression based on unsatisfactory academic performances from the Graduate School or its programs.

The intent of the academic appeal procedure is to assure fairness and due process to all involved parties. **Good faith efforts should always be made by students, faculty, and administration to settle all appeals, complaints, and grievances on an informal basis.** These efforts will include conferences between the persons directly involved and others whom these persons believe to be able to help solve the problems.

### definitions

- **Suspension:** Removal of the student from the graduate program for a defined period of time and/or the specification that a student must fulfill certain requirements before readmission or re-instatement will be considered. While suspended, the student is not entitled to attend classes, use University facilities, participate in University activities, or be employed by the University. Special conditions may be stipulated for reinstatement at the conclusion of the period of reinstatement of

the period of suspension. The student is not in good standing with the University during the term of the suspension.

- **Termination/Dismissal:** Terms used synonymously to refer to a student being withdrawn from a graduate program and Graduate School. Official notification is sent to students by email and US mail. Per this policy, students terminated have the right to appeal their dismissal in writing within one week. As with a suspension, the student is no longer entitled to attend classes, use University facilities, participate in University activities, or be employed by the University as a student.
- **Denial of Progress:** Students failing to meet program progression criteria, with course failures, too many incomplete grades, or some other programmatic issue, would fall into this category. Students in this category may be suspended or terminated/dismissed as defined by the corresponding criteria above.

Graduate programs and students should be in continuous communication. To assist this process, graduate programs have developed programmatic handbooks and students are responsible for following the policies and procedures outlined in the Graduate School and program handbooks and rules. Ignorance of the guidelines and procedures will not constitute an affirmative defense in an appeals process.

### General procedures

1. The student should be informed in writing by the relevant instructor, faculty committee, Program Director, or administrator (e.g., Dean or Assistant Dean) that he/she is not meeting the academic requirements to continue in the graduate program. Written notices of course failures, unsatisfactory program progress, and intent to request dismissal or suspension from the Graduate School are distributed to the involved student, the student's academic advisor, the Program Director, the program progression's committee (if present), and the Assistant Dean for issues on the Anschutz Medical Campus and the Associate Dean of the Graduate School for the issues on the Denver Campus.
2. Should the student disagree with the decision made by the faculty, committee, Program Director, or administrator regarding course failure or intent to terminate progression in the program based on unsatisfactory academic performance, the student should initiate a conference with the involved person(s) to determine if the disagreement can be resolved within 2 weeks.
3. If the results of the first conference are not acceptable to the student, the student informs the involved faculty within 1 week and requests a conference with the involved faculty and Program Director or school administrator. NOTE: This step is required only in situations in which the Program Director and/or school administrator have not already approved or concurred with the initial notice of failure or intent to terminate.
4. If the consensus of the program is still that the student should be terminated/dismissed or suspended, the Program Director or Chairperson notifies the appropriate Graduate School Dean (the Assistant Dean for the Anschutz Medical Campus, and the Associate Dean for the Denver Campus) and recommends the student's dismissal or suspension. The email or letter should outline the reason for the dismissal or suspension and steps taken to date. If suspension is recommended, the recommendation also includes specific criteria for the term of the suspension and requirements for reinstatement.

5. The appropriate Graduate School Dean (the Assistant Dean for the Anschutz Medical Campus, and the Associate Dean for the Denver Campus) will review the student's academic record and the information submitted by the program to ensure that the student has received due process. If the student's academic record and/or submitted information support termination/dismissal, the student will be dismissed from the program and the Graduate School. If suspension is recommended and supported by the academic record and submitted information, the student will be suspended per the request. The student will be notified by email and US mail. The program will be notified by email.

### Written Appeal Procedure

1. Should the student wish to appeal the Graduate School Dean's (the Assistant Dean for the Anschutz Medical Campus, and the Associate Dean for the Denver Campus) decision, the student should submit a written response to the Dean within 1 week of receiving the written notice of suspension or termination/dismissal. The appeal should include rationale for the appeal and desired outcome. The student also may request a personal interview with the Dean to discuss the situation after they have submitted their written appeal.
2. The final decision rests with the Dean of the Graduate School. At the Dean's discretion, he/she may discuss the Graduate School Dean's decision with the involved faculty and student's program, as well as any other persons affected by the recommended resolutions.
3. The Dean will notify the student of her/his decision by email and certified U.S. mail within 5 working days of submission of the appeal or interview with the student (whichever falls last). The decision of the Dean is final.
4. If the student is suspended, terminated/dismissed, or otherwise unable to continue his or her academic studies either temporarily or permanently because of disciplinary or other action, the Dean shall notify the appropriate CU Registrar of the change in the student's academic status and order the Registrar to suspend the student's registration.

## Academic Honor Code

### Academic Integrity Expectations

Please refer to the Academic Honesty Policies and Academic Dishonesty definitions at the University of Colorado Denver, Anschutz Medical Campus Catalog Website.

### Honor Code Guidelines

Education at the CU Denver | Anschutz is conducted under the honor system. All students who have entered graduate and health professional programs should have developed the qualities of honesty and integrity, and each student should apply these principles to his or her academic and subsequent professional career. All students are also expected to have achieved a level of maturity which is reflected by appropriate conduct at all times. Expectations, definitions, and procedures regarding graduate student conduct are outlined in the Code of Conduct (<http://www.ucdenver.edu/life/services/standards/Documents/CUDenver-CodeofConduct.pdf>).

### Academic Honesty

Students should adhere to the highest standards of academic honesty and integrity, to include completing individual work as assigned, adhering to department requirements, accurately documenting sources of information and records, and engaging in personal conduct both on and off campus that reflects well on the University, your professional duties, and your ability to perform in classroom and/or laboratory environments.

Examples of behavior that violates these standards include: plagiarism (including the undocumented use of internet and web-based information), cheating, illegitimate possession and/or use of examinations, violation of the ethical standards for conducting research, and falsification of official records.

### Professional Conduct

As current and/or future professionals, students are expected to adhere to the highest standards of professionalism during their academic career. This means that students adhere to the professional and ethical standards of their respective fields, and the academic and honor code expectations for the University of Colorado Graduate School.

The University of Colorado Graduate School has a commitment to accepting a diverse culture and highly values multiple perspectives. This means that not only is discrimination of any form unacceptable, but the University upholds the expectation that students remain open-minded, and respectfully discuss and interact with diverse backgrounds and perspectives.

Examples of unprofessional conduct include misrepresentation of effort, credentials, or achievement in either the academic or professional setting; any action which compromises the quality or safety of consumer care; violation of confidentiality; and any other conduct unbecoming a professional practitioner or researcher. When conducting research, individuals need to comply with research guidelines established by the IRB.

Although it is not possible to list every situation that violates the Academic Integrity Expectations of the Graduate School at University of Colorado Denver and Anschutz Medical Campus, the following examples will provide a reference point:

- Academic Dishonesty
- Complicity with Academic Dishonesty
- Plagiarism
- Cheating
- Fabrication and Falsification
- Submission of the same papers more than once or for different classes
- Misuse of Academic Materials
- Any conduct, both on and off campus, that interferes with the student's ability to perform his/her classroom, laboratory, or professional duties or reflects poorly on the University
- Violation of any University of Colorado, Anschutz Medical Campus, Denver Campus, or Graduate School policy

### Relationship of Honor Code to Local, State, and Federal Laws

The University adheres to all applicable local, state and federal laws, and cooperates with law enforcement officials in all matters. Any alleged violation of local, state or federal laws will be referred to the appropriate law enforcement agency and such laws have precedence over the provisions of this policy.

### Reporting Violations of the Honor Code

The primary responsibility for reporting violations of the student honor code rests with the individual who has committed the violation. However, fellow students and members of the faculty and staff also share in this responsibility. Students, faculty, and staff must report violations of the Honor Code to the Graduate School. As part of the orientation process,



each student is required to electronically sign an agreement to adhere to the Honor and Conduct Codes.

### **Guidelines for Implementation of the Student Honor Code**

Members of the Graduate School community, including faculty and students, accept the responsibility to maintain the highest standards of intellectual honesty and ethical and professional conduct. Upon admission, all students in the Graduate School electronically review or receive a copy of the Graduate School guidelines and procedures for implementing the Graduate School Honor Code. Students indicate their willingness to adhere to the Code by electronically signing the acknowledgment form. Ignorance of the guidelines and procedures may not constitute an affirmative defense to a violation of the Honor or Conduct Codes. All questions or concerns regarding the Honor and Conduct Codes should be directed to, the appropriate Graduate School office.

CU Anschutz location: Academic Office 1, room 1503 (303-724-2911)

CU Denver location: Lawrence Street Center, Suite 1251 (303-315-2183)

The Graduate School has developed the following guidelines and procedures to review alleged violations of the Student Honor Code and to make recommendations concerning violations of the Code. Alleged violations by faculty or students of the Code are first reported to the Dean or Assistant Dean. Normally, disciplinary action should not be taken against the alleged violator until the Honor Code Committee and Assistant Dean have reviewed the case and made a recommendation to the Dean; however, if the alleged violation threatens the welfare or safety of others or is against the law (see Relationship of Code to the Laws above), appropriate action should be taken immediately.

### **Honor Code Committee**

The committee generally consists of four faculty members and one student representative.

The faculty members are selected on an ad hoc basis from outside the school of the alleged violator(s). The student representative is also selected on an ad hoc basis from a different program and school than the alleged violator(s). Faculty selected to serve in this ad hoc capacity commit to be available to serve for a two year period as needed. Students commit to one year. Faculty and students can be reappointed for additional terms. The Chairperson of the committee will be one of the faculty members and will be elected by the Committee. Decisions of the committee shall be reached based upon a simple majority vote. The primary focus of this advisory committee is to examine alleged violations of the honor code as defined above, to hear testimony, and to make recommendations to the Assistant Dean as appropriate. All matters referred to the Student Honor Code Committee shall be confidential to the extent practical and permitted by law, throughout the proceedings. Note: Issues regarding violations of student conduct will be considered under guidelines as outlined in the Code of Student Conduct. Issues related to academic grievance or suspension will be dealt with as outlined in the procedure in Appendix B of the Graduate Student Handbook.

### **Procedures**

The Honor Code Committee will be convened as necessary by the Assistant Dean. The Honor Code Committee shall follow these guidelines to the extent possible. However, the Committee reserves the right to modify these procedures if necessary based on extraordinary circumstances to be determined on a case-by-case basis.

1. Faculty, staff, and other students have the responsibility to report alleged violations of the Student Honor Code. The failure of a student

to report an observed violation of the honor code may constitute a violation of the honor code and may subject the observer to an honor code proceeding. Any reasonable suspicion of a violation of the Student Honor Code shall be reported to the Graduate School Assistant Dean. All charges must be submitted in writing. Normally, disciplinary action will not be taken against the alleged violator until the Student Honor Code Committee has deliberated. However, if the alleged violation threatens the welfare or safety of others, or is against the law, the Graduate School Dean or designee will take appropriate action if necessary (e.g., immediate suspension).

2. If the reporting party is a student who has evidence that another student has violated the Student Honor Code, he/she may meet with the student to discuss the issue. The reporting party may seek the counsel of a neutral person such as the Campus Ombudsperson or another professor. The reporting party or a third party representing the reporting party shall give the student the opportunity to self-report. If the student refuses to self-report, the party shall report the suspicion to a professor, the Program Director, or School Associate Dean. The party must submit a written statement, including evidence, in writing to the Graduate School Assistant Dean within 5 working days of discussing the situation with the student.
3. If the reporting party is a faculty member who has evidence that a student has violated the Student Honor Code, he/she may meet with the student to discuss the issue. The faculty member may seek the counsel of a neutral person such as the Campus Ombudsperson or another professor. The reporting party or a third party representing the reporting party shall give the student the opportunity to self-report. If the student refuses to self-report, the faculty member shall report the suspicion to their graduate Program Director or School Associate Dean. That party must submit a written statement, including evidence, in writing to the Graduate School Assistant Dean within 5 working days of discussing the situation with the student.
4. The Assistant Dean will review the information submitted concerning the alleged violation. If the student(s) has been confronted with the violation and admits having violated the honor code, the case may be referred immediately to the Assistant Dean for review and action. If there is no admission of wrongdoing, the case will be referred to the Honor Code Committee for a hearing. The Assistant Dean will coordinate the hearing process.
5. When an alleged violation is referred to the Honor Code Committee, the reporting party and student(s) will be notified of the charges in writing within 10 working days of the date of referral to the Committee and the date of the scheduled hearing.
6. The Honor Code Committee will hold a hearing. The Assistant Dean will coordinate the activities of the Committee and attend the hearings as a non-voting observer. The hearing will be held, if possible, within thirty 30 days of the student(s) being notified of the alleged Honor Code violation. (a) The student(s) shall have the opportunity to submit a written pre-hearing statement in response to the charges. (b) The student(s) shall have the opportunity to review any evidence against him/her prior to the hearing upon submission of a written request to the Assistant Dean. (c) The reporting party shall also have the opportunity to review any evidence presented by the student(s) so they might clarify or update their statements prior to them being given to the Honor Code Committee. Full transparency shall be provided to all parties for evidence provided to the Committee.

The student accused of violating the Honor Code will be given an opportunity to be heard during the hearing and to present any evidence or witness he/she wishes. The reporting party may either attend the



proceedings in person or submit a statement of the incident in lieu of personally attending the hearing. The Committee shall have no power to compel any individual to testify.

Legal counsel will **not** be present for either the student or the University parties.

7. Following the hearing, the Student Honor Code Committee will discuss the proceedings outside the presence of the parties and determine a course of action to follow with respect to the student in question. Upon a majority vote of the Honor Code Committee, they will make their recommendation in writing to the Graduate School Assistant Dean, which may include but is not limited to the following actions:

- Take no action against the student based on a finding of no violation.
- Place the student on disciplinary probation for a specified period of time.
- Suspend the student's registration at the University of Colorado, including Extended Studies, for a specified period of time.

If the Committee is unable to reach a majority opinion on whether the student violated the Honor Code and what, if any, discipline should occur, the Chairperson will act as the tiebreaker.

8. A record of all documents associated with the case and a record of the action taken will be kept in a file in the Assistant Dean's office.

9. The Assistant Dean will review the decision of the Committee and notify the student(s) of her/his decision by email and certified U.S. mail within 5 working days of the hearing. The reporting party will also be notified by email of the decision.

10. The Assistant Dean will only reverse or modify the findings and recommendations of the Honor Code Committee if he/she concludes by a preponderance of the evidence that one of the following situations exists: (a) new information regarding the student's alleged violation of the Honor Code which was previously unknown to the student or the Committee is discovered; (b) there was an error in the process that prevented the student from presenting relevant information to the Committee that could have materially changed the Committee's decision; or (c) there is evidence that the Honor Code Committee acted in an arbitrary or capricious manner.

11. If the student wishes to appeal the decision in the case, the appeal along with the rationale for the appeal shall be submitted in writing to the Graduate School Dean within 7 working days after the letter notifying the student of the Assistant Dean's decision has been sent by certified U.S. mail. The Dean will review the appeal within 14 working days and notify the student of the decision by email and US mail. Should extenuating circumstances necessitate an extended review or additional time, all parties will be notified. The decision of the Dean is final.

12. If the student is suspended, terminated/dismissed, or otherwise unable to continue his or her academic studies either temporarily or permanently because of disciplinary or other action, the Dean shall notify the appropriate CU Registrar of the change in the student's academic status and order the Registrar to suspend the student's registration.

## Conflict of Interest Policy

### CONFLICT OF INTEREST POLICY FOR GRADUATE STUDENTS WHO HOLD OTHER POSITIONS AT CU ANSCHUTZ

Graduate students may hold employment positions within the University of Colorado Anschutz Medical Campus in addition to their positions as graduate students at CU Anschutz. When this situation occurs, there is the potential for conflicts of interest to arise. This policy governs such situations.

- A graduate student may not also be a regular faculty member (Instructor or above) in the same program in which s/he is enrolled as a student.
- If two individuals exist in a student-faculty relationship in a graduate program, they may not both hold faculty (Instructor or above) appointments in the same graduate program, even though that graduate program is different from the one in which the student is enrolled.
- Recent graduates can be granted a graduate faculty appointment in the graduate program from which they graduated. In this situation, the new faculty member must not direct courses taken by individuals who were students when the new faculty member was also a student. (In programs where independent student cohorts exist, then the new faculty member must not direct a course taken by students from his/her cohort.) The new faculty member may not serve on an examination committee of any individual who was a student in the program (regardless of cohort) when the new faculty member was still a student.
- A faculty member who employs a graduate student as a PRA:
  - Can be an "in" graduate faculty member of the student's program and can serve on the student's graduate degree examination committee(s) with the approval of the Graduate Program Director; or
  - Can serve as an additional (but not sole) "outside" graduate faculty member of the student's program and examination committee with the approval of the Graduate Program Director; but
  - Cannot serve as Chair of the student's examination committee(s).
- Despite the allowable participation on examination committees described above (#4), the Graduate School discourages such involvement and suggests that the employer not serve on the committee, but attend all committee meetings as an invited guest.

## Student Email Policy

### A. Purpose of the Policy

There is an expanding reliance on electronic communication among students, faculty, staff and administration at the University of Colorado Denver, Graduate School and in other schools on campus. Because of this increasing reliance and acceptance of electronic communication, email is considered an official means for communication within UCD Graduate School.

Implementation of this policy ensures that students have access to this critical form of communication. For the majority of students, this will not represent any change from what is currently done; it will, however, ensure that all students can access, and be accessed by, email as the need arises.

**B. Scope**

The student email policy provides guidelines regarding the following aspects of email as an official means of communication:

- University use of email;
- Assignment of student email addresses;
- Student use of and responsibilities associated with assigned email addresses; and
- Expectations of email communication between faculty and student and staff and student.

**C. Policy****1. University use of email**

Email is an official means for communication within UCD Graduate School. Therefore, the University of Colorado Denver Graduate School has the right to send communications to students via email and the right to expect that those communications will be received and read in a timely fashion.

**2. Assignment of student email address**

Information Systems (IS) will assign all students an official University email address. It is to this official address that the University of Colorado Denver Graduate School will send email communications; this official address will be the address listed in the University's Global Address List for that student.

**3. Redirecting of email**

UCD email cannot be electronically redirected to another email address. Support is available for setting email clients to read multiple accounts. Please go to the Health Sciences Library for information on how to set up your computer to receive multiple email accounts. The University will not be responsible for the handling of email by outside vendors or by departmental servers.

**4. Expectations regarding student use of email**

Not reading email does not absolve a student from the responsibilities associated with communication sent to his or her official email address. Students are expected to check their official email address on a frequent and consistent basis in order to stay current with University communications (at a minimum, once a week). Students have the responsibility to recognize that certain communications may be time critical. "I didn't check my email," error in forwarding email, or email returned to the University with "Mailbox Full" or "User Unknown" are not acceptable excuses for missing University communication sent via email.

**5. Educational uses of email**

Faculty will determine how email will be used in their classes. It is highly recommended that if faculty have email requirements and expectations they specify these requirements in their course syllabus. Faculty can make the assumption that students' official email addresses are being accessed, and faculty can use email for their courses accordingly.

**6. Appropriate use of student email**

- a. All use of email including use for sensitive or confidential information, will be consistent with the Administrative Policy Statement on Use of Electronic Mail. See <http://www.cusys.edu/policies/General/email.html>
- b. Confidentiality regarding student records is protected under the Family Educational Rights and Privacy Act of 1974 (FERPA). All use of email, including use for sensitive or confidential information, will be consistent with FERPA.
- c. Email shall not be the sole method for any legal notification, action, or correspondence.

**7. Procedures**

The Office of the Assistant Vice Chancellor for Information Systems will review this policy as needed. Changes will be authorized by the approval of the Dean and the Assistant Dean.

**8. References**

This policy complies with the guidelines as found in: Family Educational Rights and Privacy Act, UCD Registrar; UCD's Information Technology Services, Rights and Responsibilities <http://www.UCHSC.edu/is/policies/aup.htm>; University of Colorado System, Use of Electronic Mail Policy: <http://www.cusys.edu/policies/General/email.html>; University of Colorado System, Student Rights to privacy of Educational Records: <http://www.cusys.edu/policies/Academic/studentrights.html>

## Format Guidelines for Theses & Dissertations

Please reference the guide found on the Graduate School website, at [https://www.ucdenver.edu/docs/librariesprovider138/denver-anschutz-graduate-school/resources/format-guide.pdf?sfvrsn=df0622b9\\_10](https://www.ucdenver.edu/docs/librariesprovider138/denver-anschutz-graduate-school/resources/format-guide.pdf?sfvrsn=df0622b9_10).

## Graduate School Acceptable Use Policy

**A. Introduction**

The purpose of the acceptable use policy is to establish processes and guidelines to all staff members in **Graduate School**, including full time staff, part time staff, and temporary staff (includes contractors, temps and students). The user shall only be granted access to the minimum necessary data that they require to perform their duties.

**B. Policy Statement**

The use and access of **Graduate School** information systems is restricted to appropriately identified, validated and authorized individuals. The following subsections outline the requirements for gaining access to **Graduate School** information systems.

**C. Workstation Use and Security**

1. Each workforce member must use a unique user name and strong password to access their workstation and subsequent data both locally and via server.
2. Computer workstations accessing FERPA data must maintain security configurations that restrict access to data to only those workforce members that have been legitimately granted access. Recommended security configurations include, but are not limited to:
  - a. Enabling a password protected screen saver
  - b. Setting computers or applications to automatically terminate a computing session after a set period of idle time
  - c. The use of campus standard anti-virus products
  - d. Applying security patches to computer software applications and operating systems
  - e. When CU Denver|Anschutz stores, shares, and syncs work files internally or externally, it is important that the confidentiality, integrity, and availability of that data be preserved. OneDrive can be used to store, share, and sync work files internally or externally with the following guidance.
    - i. <https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/onedrive> (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/onedrive/>)
    - ii. [https://www1.ucdenver.edu/docs/default-source/offices-oit-documents/how-to-documents/onedrive-staying-secure.pdf?sfvrsn=668bb7b8\\_4](https://www1.ucdenver.edu/docs/default-source/offices-oit-documents/how-to-documents/onedrive-staying-secure.pdf?sfvrsn=668bb7b8_4)

#### D. Unit Responsibilities

1. Unit educates their workforce members on the unit's specific procedures and requirements as necessary. Training requirements for gaining access to Unit Information Systems are listed below.
  - a. Required skillport courses in UCDAccess once beginning employment term:
    - i. CU: Information Security and Privacy Awareness (u00063)
    - ii. CU: FERPA (u00049)
  - b. Per OIT's Active Directory compliance, users must create a password to meet OIT's standards for mail, AD, domain access, etc. This password is changed each quarter, and must be different from the previous 12 passwords. See password policy below:

*Password must be at least 8 characters in length.*

*Password must contain letters from at least three out of the following five categories: Uppercase alphabetic characters (A-Z); Lowercase alphabetic characters (a-z); Numerals (0-9); Non-alphanumeric characters (for example: !, \$, #, or %); Unicode characters.*

*Password must not contain any of user ID, first name, or last name when their length is larger than 2.*

*Password must not be one of the 12 previous passwords.*

#### E. User Responsibilities

1. CU Denver|Anschutz workforce members must observe the CU Denver Information Systems' Appropriate Use Policy (AUP) ([http://www.ucdenver.edu/faculty\\_staff/employees/policies/Policies%20Library/DDC/Computing/Acceptable-Use-of-Information-Technology-Resources-Policy-v5-Mar-20-2014.pdf](http://www.ucdenver.edu/faculty_staff/employees/policies/Policies%20Library/DDC/Computing/Acceptable-Use-of-Information-Technology-Resources-Policy-v5-Mar-20-2014.pdf)) which outlines expectations regarding the ethical and permissible use of CU Denver|Anschutz computing resources.
2. CU Denver|Anschutz workforce members must follow the provisions of the CU Denver|Anschutz OIT Security Computing policy in regard to guarding against, detecting, and reporting malicious software
3. CU Denver|Anschutz workforce members shall not attempt to alter audit records or avoid accounting for computing services. (See CU Denver Information Systems' Appropriate Use Policy (AUP) ([http://www.ucdenver.edu/faculty\\_staff/employees/policies/Policies%20Library/DDC/Computing/Acceptable-Use-of-Information-Technology-Resources-Policy-v5-Mar-20-2014.pdf](http://www.ucdenver.edu/faculty_staff/employees/policies/Policies%20Library/DDC/Computing/Acceptable-Use-of-Information-Technology-Resources-Policy-v5-Mar-20-2014.pdf)) )
4. CU Denver|Anschutz workforce members shall not use CU Denver|Anschutz resources to develop or execute programs that could infiltrate the systems or alter the software components of the workstations.
5. CU Denver|Anschutz workforce members must follow the Portable Media Security Policy. Portable media can include, but is not limited to, laptops, mobile devices such as personal digital assistants (PDAs) or other types of wireless handheld devices, USB flash drives, memory sticks, and any other portable device used to store or transport data.
6. CU Denver|Anschutz workforce members must follow the Visitor Control guidelines outlined in the Access Control Policy when visitors are on-site.
7. All members of the CU Denver|Anschutz workforce are reminded to wear their badges while on University property.

#### F. Action

All suspected policy violations, workstation compromise, virus infections, and other conditions which might jeopardize CU Denver|Anschutz information systems, data, or business must be immediately reported to the OIT Security Office.

## Graduate School Access Control Policy

#### A. Introduction

The purpose of the access management section is to establish processes to control access and use of Graduate School information resources.

Access management incorporates Role Based Access Controls (RBAC), privileged user access, access definitions, roles, and profiles. The user shall only be granted access to the minimum necessary information that they require to perform their duties.

#### B. Policy Statement

The use and access of Graduate School information systems is restricted to appropriately identified, validated and authorized individuals. The following subsections outline the requirements for gaining access to Graduate School information systems.

#### C. Access Control Procedures

Systems must develop, adopt or adhere to a formal, documented access control procedure that addresses purpose, scope, roles, responsibilities, management commitment, coordination among organizational entities, and compliance.

##### 1. Account Management-User Access

- Access management to information systems to be granted (ex. passwords, etc)
  - Graduate School relies on OIT authentication systems (AD, etc.) to authorize users of the University of Colorado Denver|Anschutz computing resources.
  - The GS IT Admin adjusts user permissions based on requests of their supervisors for server shares.
  - Default passwords are to be changed or disabled, replaced with secure passwords
- Responsible party for monitoring and reviewing access rights
  - GS IT Admin reviews access rights upon every new hire, every termination, and at a bi-annual schedule, after each semester.
- Access and use of systems resources and subsequent monitoring (project space/ application/storage, remote access, mobile devices, etc.)
  - Systems are audited internally every semester, reviewing security groups and users on GS domain
  - Users with edit access on web pages are also reviewed
  - Remote access is limited to access via GlobalProtect VPN hosted by OIT
- Off-boarding process for users that are no longer working on the project, terminated, or have a change in job role.
  - User's supervisor notifies and submits request to GS IT Admin
  - GS IT Admin removes user from security groups, using the concept of least privilege, or removing altogether if terminated
- GAIA access has always been granted to Departmental and Program administrators upon request (desire to use GAIA for data storage and reporting). Users are only given as much access as required (typically level 4 for admins). Faculty are also given access, but with a lower level (2).

##### 1. Workstation Use and Security

- a. Each workforce member must use a unique user name and strong password.
- b. Computer workstations must maintain security configurations that restrict access to only those workforce members that have been legitimately granted access. Recommended security configurations include, but are not limited to:

- i. Enabling a password protected screen saver;
- ii. Setting computers or applications to automatically terminate a computing session after a set period of idle time;
- iii. The use of campus standard anti-virus products;
- iv. Applying security patches to computer software applications and operating systems.

#### **D. Physical Access**

1. Facility Access Controls
  - a. Facility security consists of:
    - i. On both campuses, the Graduate School is locked down outside the hours of 8am-5pm, requiring approved card access.
    - ii. Upon entry, each office and subsequent equipment is further protected by physical lock-and-key.
2. Access Control
  - a. Access determinations must be based on the workforce member's role or function within the unit. Determinations of access should take into account at what time(s) access will occur and under what conditions.
  - b. Unit managers or supervisors will work with the Badging and Security Services Security Badging Office/Electronic Security Department to request and recommend access for each member of the unit workforce. For specific access forms, contact the Badging and Security Services Security Badging Office/Electronic Security Department at (303) 724-0399.
  - c. If a workforce member's access needs change or end, the unit manager or supervisor must work with the Electronic Security Department to modify or terminate the member's access.
    - i. Anschutz Medical Campus
      1. Associate Dean works with Electronic Security Department to enable/disable access based on new employment, termination, or move within CU.
      2. The supervisor or HR advisor submits the request to Associate Dean, who funnels all requests accordingly.
    - ii. Denver Campus
      1. Supervisor requests access card via Facilities Management and turns it in upon termination or relocation outside of GS.
  - d. The unit manager or supervisor must ensure that access is limited to what is appropriate for the workforce member's job function.
3. Validation Procedures
  - a. Once an individual's facility access has been determined and recommended by the individual's supervisor, validation of identity is performed by the Badging Office.
  - b. All members of the CU Denver workforce are reminded to wear their badges while on University property.
4. Maintenance Records
  - a. The Badging and Security Services Security Badging Office/Electronic Security Department is responsible for maintaining records on all installations, repairs, or replacements of access control devices at a building or campus-level.

#### **E. User Responsibilities**

1. Graduate School educates their workforce members on the Graduate School's specific procedures and requirements as necessary. Each Unit will educate users on the Acceptable Use Policy specific to their environment.
  - a. See Acceptable Use Policy, section E

2. Please explain your unit's training requirements for gaining access to Graduate School Information Systems.
  - a. See Acceptable Use Policy, section D

#### **F. Graduate School Access Review**

Review accounts on a periodic basis, but no less than every 6 months.

#### **G. Graduate School Policy Review**

Review and update policy and procedures on an Annual basis.

#### **H. Document Retention**

All unit procedures, documentation of decisions made, information system activity reviews, and investigations conducted pursuant to this policy must be retained for a period of no less than six (6) years from the date the policy was last in effect or from the date the decision or investigation was made.

## **Graduate School Policies & Procedures**

Please reference the documentation on the Graduate School website at [https://www.ucdenver.edu/docs/librariesprovider138/denver-anschutz-graduate-school/resources/graduate-school-policies-and-procedures.pdf?sfvrsn=d00622b9\\_2](https://www.ucdenver.edu/docs/librariesprovider138/denver-anschutz-graduate-school/resources/graduate-school-policies-and-procedures.pdf?sfvrsn=d00622b9_2).

## **Inclement Weather Policy**

### **Snow Policy**

In the event of inclement weather the Graduate School staff, its faculty and students will follow the University closure announcements and schedule. If the university remains open, the faculty, administrators, and staff will be expected to make every reasonable effort to maintain their regular work schedules, but are advised to exercise their judgment and avoid undue risks in traveling. Employees who anticipate arriving late or not arriving at work at all should notify their immediate supervisor.

### **Delayed Opening**

In the event of a delayed opening, the specific time of opening will be announced to the campus community through the local media and via [www.ucdenver.edu/alert](http://www.ucdenver.edu/alert). All faculty and staff are expected to arrive on campus by the delayed opening time. Students are expected to report to their regularly scheduled classes. In a delayed opening, all classes scheduled prior to the set time of opening are cancelled for the day. Students will be responsible for any academic work missed due to absences caused by severe weather conditions. It is the individual student's responsibility to take the initiative to make up any missed class work. It is the faculty member's responsibility to provide a reasonable opportunity for students to complete assignments or examinations missed due to inclement weather. Faculty members have discretion in determining whether additional classes will be added for the class or if additional work is assigned due to a closure or delayed opening.

### **Early Closure**

In the event that weather conditions become unfavorable during the day and necessitate the early closure of the campus or the school, classes will be cancelled for the remainder of the day. Should this decision be reached by the Graduate School Dean prior to a formal announcement being made for an early campus closure, an email will be sent to all graduate students, graduate program administrators, and notification posted on the Graduate School website regarding an early closure.

## **IT Acceptable Use Policy**

### **I. Policy Snapshot**

Brief Description: Sets forth the University's policy with regard to use of and access to University of Colorado Denver | Anschutz Medical



Campus IT Resources including university account use, privacy, computer and network security, legal and ethical use, networking and computing conduct, and software and intellectual property use. Further includes the steps the university may take should this policy be violated.

## II. Scope

This policy applies to all users of University of Colorado Denver | Anschutz Medical Campus IT resources (including faculty, staff, students, and sponsored accounts) whether affiliated with the University or not, and to all uses of those resources, whether on campus or from remote locations.

## III. Introduction

The Office of Information Technology at the University of Colorado Denver | Anschutz Medical Campus (CU Denver | Anschutz) is charged with the acquisition, development, and maintenance of computers, computer systems and networks. These Information Technology (IT) resources are intended for University-related purposes, including direct and indirect support of the University's instruction, research, clinical and service missions; University administrative functions; student and campus life activities; and the free exchange of ideas within the University community and among the University community and the wider local, national, and world communities.

The use of network, computing, and other technology resources at the University is a privilege. It is the shared responsibility of all users, including faculty, staff and students to use these resources in an efficient, ethical, and legal manner.

This policy may be modified as deemed appropriate by the University. Users are encouraged to periodically review this policy as posted on CU Denver | Anschutz Office of Information Technology web site.

## IV. General Rules

Users of University IT resources shall comply with federal and state laws, University rules, regulations and policies, and the terms of applicable contracts including software licenses while using University IT resources. Users who engage in electronic communications with persons in other states or countries or on other systems or networks may also be subject to the laws of those jurisdictions and the rules and policies of those other systems and networks. Users with questions as to how the various laws, rules and regulations may apply to a particular use of University computing resources should contact the University Counsel for more information.

Users are responsible for ascertaining what authorizations are necessary and for obtaining them before using University IT resources. Users are responsible for any activity originating from their accounts which they can reasonably be expected to control. In cases when unauthorized use of accounts or resources is detected or suspected, the account owner should change the password and report the incident to the appropriate account administrator, Unit Information Security Manager, and/or Dean, Director, or Department Chair. Users must understand that disclosing their account credentials to cybercriminals may result in personal losses that they are ultimately responsible for.

## V. Statement of Policy

As a condition of use of University network and computing resources, every University IT resource user agrees:

### Account Use

- Users shall utilize their accounts only for the purposes specified by the account grantor.

- Users shall not use any other individual's credentials or attempt access to account not granted for them.
- Users shall not attempt to alter or avoid account access controls for computing systems.
- Accounts and passwords may not, under any circumstances, be used by persons other than those to whom they have been assigned by the account administrator.
- Users shall not share/disclose their account passwords with/to others.

### Privacy

- Users shall not intentionally seek information on, obtain copies of, or modify files, hard drives, passwords or credentials, or any type of data belonging to other users unless specifically authorized to do so by the data owner or by University Counsel.
- Users should always avoid violating others' privacy by:
  - tampering with security provisions,
  - attempting entry to non-public hosts, or
  - sharing login credentials with others.

### Computer and Network Security

- Users shall not attempt to alter, delete or avoid computer audit controls and accounting log files.
- Users shall not attempt to bypass computer and network access controls.
- Users shall not use CU Denver | Anschutz IT resources to infiltrate other systems, or damage or alter the software components of the systems.
- Users should avoid overuse of resources as defined by CU Denver | Anschutz OIT. For example:
  - network bandwidth,
  - network file storage
  - printers
  - wireless networks (WiFi), and
  - all other CU Denver | Anschutz IT resources
- Users must conform to campus standards for anti-virus protection. Exceptions are only allowed if the CU Denver | Anschutz OIT authorizes exclusions in writing due to unique and extraordinary circumstances.
- Users shall not implement their own network infrastructure without explicit written permission by OIT. This includes, but is not limited to, network devices such as hubs, switches, routers, network firewalls, DHCP servers, DNS servers, email servers or relays and wireless access points. Users must not implement alternate methods of access to CU Denver | Anschutz IT resources such as wireless access points (WiFi) and virtual private networks (VPNs).

### Legal and Ethical Use

- Users shall not;
  - abuse, harass, intimidate, threaten, stalk, or discriminate against others through the use of computing resources or
  - send obscene, abusive, harassing, or threatening messages to any other individual.
- IT resources are not to be used for personal commercial purposes, non-University business, or for personal financial or other gain. Occasional personal use of University IT resources for other purposes is permitted when it does not consume a significant amount of those resources, does not interfere with the performance of the user's job or other University

responsibilities, and is otherwise in compliance with this and other University policies, including without limitation the University's policies on outside activities and use of University trademarks and names. Further limits may be imposed upon personal use in accordance with normal supervisory procedures concerning the use of University equipment.

- Users shall not misrepresent oneself or others through electronic communication including email.
- Users shall follow all University of Colorado, CU Denver | Anschutz, and CU Denver | Anschutz OIT policies, ethical standards and all local, state, and federal laws related to computing.
- Engaging in physical or cyber vandalism or mischief that incapacitates, compromises, or destroys CU Denver | Anschutz IT resources.

### Network and Computing Policies

- Users should avoid violating others' privacy, tampering with security provisions, or attempting entry to non-public hosts and/or data without written approval from the University Security Principal.
- Disruptive use of University IT resources is not permitted.
- Users should avoid excessive use of resources, controlled or otherwise. For example, University workstations/computers, servers, graphics devices, printers and networks, both voice and data, are resources that must be shared in an equitable manner.
- Users may not use any IT resource to gain unauthorized access to remote computers or to impair or damage the operations of University computers or networks, terminals or peripherals. This includes blocking communication lines, intercepting or sniffing communications, and running, installing or sharing virus programs.

### Software and Intellectual Property Use

- Use of copyrighted software must be in compliance with vendor license requirements. Obtaining proper licensing for software that is not provided by the University is the responsibility of the user, as is the proper maintenance of such licenses and any associated software licensing fees.
- Users shall not violate vendor software copyright and authorized use policies. This includes using, duplicating, or distributing licensed software and documentation without the express written permission of the original copyright owner.
- Users shall not install and use:
  - File and/or music sharing programs,
  - Video and/or audio streaming programs that are playing non-campus mission related content.
  - Other programs that violate the ethical, efficient, and productive use of the campus internet resources.

## VI. Responsibility & Action

Violation of this policy or other University information technology policies can result in revocation of computing privileges as well as corrective and/or disciplinary action.

### Office of Information Technology (OIT)

OIT is responsible for interpretation and guidance regarding this policy. OIT also reserves the right to take additional action against violations of these policies. OIT may also refer suspected violations of law to appropriate law enforcement agencies for further investigation or action.

### Other Responsible Parties

Other offices, departments, schools, etc. may be responsible for campus compliance and enforcement of this policy to take further action against violations. Other responsible parties include but are not limited to The Office of Regulatory Compliance, Human Resources, University Counsel, Student Affairs, and the Office of the Chancellor.

Users who violate this policy may be subject to other penalties and disciplinary action, including expulsion or dismissal, under applicable University or Board of Regents rules, regulations, policies, or collective bargaining agreements. Other responsible parties may also refer suspected violations of law to appropriate law enforcement agencies for further investigation or action.

The University may suspend, block or restrict access to an account when it appears necessary to do so: a) to protect the integrity, security, or functionality of University or other IT resources; b) to comply with legal or contractual requirements; c) to investigate alleged or potential violations of law or policy including, without limitation, state, federal, or local law, or University or Board of Regents rules, regulations, policies, or collective bargaining agreements; d) to investigate any asserted, threatened or potential complaint or grievance filed or credibly alleged pursuant to law or University or Board of Regents rules, regulations, policies, or collective bargaining agreements, or subject of law enforcement review or investigation; e) or to protect the University from liability or disruption.

## VII. Reference Documents

CU System APS 6001: Information Technology; Providing and Using

CU System APS 6002: Use of Electronic Email

CU System APS 6005: IT Security Program Policy

Ethical Use of Computing Policy; June 27, 2006

## Staff Effort Percentage - Research Assistants

### Research Assistants - Job Code 1505

In 2015, departments were advised to enter the FTE and percentage for research assistants working directly on a funded research project directly connected with and part of their progress towards earning a master's degree or PhD as zero/2.5% in HCM.

While doing a recent review of job codes last year, University Counsel determined that entering a more precise FTE and percentage better reflects the number of hours of service that are actually performed for the University by the research assistant/trainee over a semester. As a result, it has been determined that appointments should be entered into HCM as follows:

Job Code: 1505 (Research Assistant)

% Time: 50%

Standard Hours Wk: 20

Pay Group: STM

FTE: .5

Job Code: 3204 (Trainee on Fellowship or Training Grant)

% Time: 50%

Standard Hours Wk: 20

Pay Group: SPD

FTE: .5

All active and new research assistants should be set-up and coded in this manner. Please contact Susan Nagel in the Graduate School if you have questions.

## Vacation & Leave Policy

### GRADUATE SCHOOL POLICY FOR VACATION AND LEAVE FOR PH.D. STUDENTS

Graduate school is a privilege; working in the biomedical research/academic field, whether as a graduate student, a postdoctoral fellow, or an independent investigator, is a time-honored and challenging profession that requires a high level of commitment and responsibility. Students who receive full-support stipends from the University of Colorado Denver | Anschutz Medical Campus Ph.D. programs are required to pursue their training on a full-time basis, devoting each day of the normal work week, plus any additional time required by their research projects and academic courses. Additionally, for a student to maintain full-time student status, the following guidelines for vacation and leave time have been established by the Graduate School. These represent the leave to which a graduate student is entitled; however, research demands and commitment to graduate studies often result in students using less than the allotted leave. Individual graduate programs might not have a formalized system for accounting for vacation and sick leave; if so, vacation and leave monitoring falls under the honor system and is the responsibility of the student.

#### Vacation and Holidays

Graduate students shall receive all University holidays and no more than 14 calendar days (counting all days Monday through Sunday) of vacation per annum, with no year-to-year accrual. Students shall continue to receive stipends during vacations and holidays. In the Graduate School at the University of Colorado Denver | Anschutz Medical Campus, the times between academic terms and the summers are considered active parts of the training period and are not necessarily free times. However, students taking courses are expected to attend all classes and take all exams as scheduled. They should not take vacations when classes or exams are scheduled. For advanced students, vacation time should be arranged with the dissertation advisor.

#### Sick Leave and Other Leave

Graduate students may continue to receive stipends for up to 15 calendar days (counting all days Monday through Sunday) of sick leave per annum, with no year-to-year accrual. Under exceptional circumstances, additional sick days may be granted following a written request and approval by the student's program director. Sick leave may be used for the *medical* conditions related to pregnancy and childbirth.

- **Parental Leave**

Graduate students may also receive stipends for up to 60 calendar days (counting all days Monday through Sunday) of parental leave per annum for the adoption or the birth of a child. Either parent is eligible for parental leave. Parental leave must be approved by the student's program director. Sick leave may not be used to supplement parental leave, except as noted above.

- **Unpaid Leave**

Individuals requiring more than 15 calendar days of sick leave or more than 60 calendar days of parental leave, must seek approval from their program for an unpaid leave of absence. Approval for a leave of absence must be requested in advance by the student and approved by the program. The leave period and conditions must be documented, both at the time of leave and at the time of re-entry into the program. A copy of this agreement must be submitted to the Graduate School.

- **Termination**

Upon graduation or termination a graduate student forfeits all unused annual and sick leave; payment may not be made from grant funds (training grants or research grants) for leave not taken.

## Graduate School Certificates

### Overview

Graduate certificates are more narrowly defined credentials that may benefit working professionals who aren't ready or able to commit to a full degree or current degree-seeking students looking to gain and draw attention to proficiency in a topic. Graduate certificates are not degrees, and as such, are not typically eligible for financial aid. Some can be 'stacked' (taken over time) to meet the requirements of a Master's degree.

Detailed descriptions of each graduate certificate and admissions requirements can be found on the Certificate's page.

The following certificates are available through the Graduate School:

- Anatomical Sciences Education (Certificate) (p. 175)
- Biomedical Data Science (Certificate) (p. 177)
- Biomedical Science (Certificate) (p. 178)
- Community-Based Hospice & Palliative Medicine Fellowship (Certificate) (p. 180)
- Dissemination & Implementation Science (Certificate) (p. 182)
- Health Ethics & Humanities (Certificate) (p. 184)
- Palliative Care (Certificate) (p. 186)
- Personalized & Genomic Medicine (Certificate) (p. 188)
- Research Management and Compliance (Certificate) (p. 190)

## Anatomical Sciences Education (Certificate)

### Overview

The anatomical sciences are an essential portion of education for health science professional programs; however, recent studies have shown a decrease in anatomy educators qualified and trained to teach anatomy in the United States. The Anatomical Sciences Education Certificate in the Modern Human Anatomy Program (p. 204) provides formalized coursework and instruction, which ensures that students graduating from the Modern Human Anatomy program (p. 204) with the certificate have the level of competence necessary to become university instructors or community college professors.

The Certificate in Anatomical Sciences Education within the Master of Science in Modern Human Anatomy (p. 204) curriculum provides students with the pedagogical foundations, mentoring, and practice necessary to become effective educators in the anatomical sciences. While the certificate curriculum and the Modern Human Anatomy Master of Science (p. 204) (parent program) share a common 1st year curriculum, the curricular differences occur in the 18-credit 2nd year required coursework. Certificate students must follow a 2nd year curriculum dedicated to the study, practice, and scholarship of anatomical education, including an 8-credit capstone project with an educational component. This focused certificate curriculum provides a direct pathway for students to become educators at the community college, university, and professional school levels.

## Admissions Requirements

The Certificate in Anatomical Sciences Education is offered only to degree-seeking students in the Master of Science in Modern Human Anatomy (MHA) program. MHA students are required to apply to the certificate program. The application consists of short essays detailing the student's motivation for pursuing the certificate and how participation in the certificate will contribute to the student's education and career goals.

## Certificate Requirements

Please note: Year 1 Summer, Year 2 Fall, and Year 2 Spring are flexible, and courses can be taken in many orders and combinations.

### First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
ANAT 6412	Foundations of Teaching	1
	<b>Hours</b>	<b>1</b>
<b>Spring</b>		
N/A		
	<b>Hours</b>	<b>0</b>
<b>Summer</b>		
ANAT 6950	MSMHA Capstone Project	2
	<b>Hours</b>	<b>2</b>
	<b>Total Hours</b>	<b>3</b>

### Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
ANAT 6600	Experimental Design and Research Methods	1
ANAT 6911	Advanced Teaching Practicum	3
ANAT 6490	Advanced Teaching in Anatomical Sciences	3
ANAT 6950	MSMHA Capstone Project	3
	<b>Hours</b>	<b>10</b>
<b>Spring</b>		
Certificate Approved Elective		3
Certificate Approved Elective		1
ANAT 6950	MSMHA Capstone Project	3
	<b>Hours</b>	<b>7</b>
	<b>Total Hours</b>	<b>17</b>

## Learning Objectives

The Anatomical Sciences Education Certificate trains graduate students to be capable and skilled educators who are successfully able to:

1) Understand and apply research-based pedagogical theory in the anatomical sciences

- Discuss and analyze research-based pedagogy literature.
- Understand frameworks for making curricular decisions.

c. Develop content-based instructional materials using pedagogical theory.

2) Teach anatomical sciences at a professional level

- Develop content-based instructional and pedagogical skills.
- Implement active learning techniques and investigate the impact of teaching for diversity in health science programs.
- Apply pedagogical theories to practice in a professional program.

3) Develop professionally through structured mentorship by Academy of Medical Educators faculty

- Incorporate faculty feedback in teaching methods.
- Incorporate faculty feedback in educational materials.

## Courses

ANAT 6412 - Foundations of Teaching (1 Credit)

This course will provide students with training, practice, and constructive feedback in effective teaching skills in order to be successful in the biomedical professions. Topics include learning objectives, the neurobiology of learning, assessments, and effective communication within and outside the classroom.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

ANAT 6490 - Advanced Teaching in Anatomical Sciences (3 Credits)

This course offers a hands-on, supervised experience as an anatomical sciences educator. Readings and discussions will enhance your understanding of educational pedagogy. You will apply these skills as you develop and deliver lecture and lab content in a classroom setting. Instructor consent required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

ANAT 6600 - Experimental Design and Research Methods (1 Credit)

In this course, students will foster and apply strategies that enable critical evaluation of any published research (including basic, clinical, and educational), as well as develop the skills necessary to conduct and appropriately analyze their own research data.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

ANAT 6911 - Advanced Teaching Practicum (1-4 Credits)

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Pre-requisite: ANAT degree-seeking student; ANAT 6412

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.



**ANAT 6950 - MSMHA Capstone Project (1-12 Credits)**

The Capstone project is a scholarly and/or research-based pursuit of knowledge and content development in the area of anatomical sciences, modern imaging and modeling technologies, and educational science completed as part of the MS in Modern Human Anatomy. Prerequisite: Must be ANAT degree-seeking student.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

### Maureen Stabio, PhD

Associate Professor, Department of Cell and Developmental Biology  
Chair, Certificate in Anatomical Sciences Education  
Maureen.stabio@cuanschutz.edu  
303-724-7461

### Jennifer Thurston, MPA

Academic Services Program Director  
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## Biomedical Data Science (Certificate)

### Overview

Biomedical Data Science has become an integral part of biomedical research. As a result, biomedical scientists with data science knowledge are advantaged on multiple fronts. This one-year BioMedical Data Science (BMDS) Certificate Program is designed to provide students with the basic data science skillset in the context of biomedical research data. At the completion of this certificate the students will be able to:

1. Communicate constructively with Data scientists
2. Can analyze their own dataset
3. Can explore the large datasets available in the public domain, therefore missing an important opportunity to mine big data resources.

Therefore, training researcher the basics of data science is crucial to advance scientific discovery.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying palliative care.
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars). Checks or money orders should be made out to the University of Colorado.

- Transcripts: Unofficial transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
BSBT 6110	Introduction to Biocomputing	3
Must be taken together:		
BSBT 6112	Introduction to Biocomputing	2
BSBT 6113	Data Science with R	1
<b>Hours</b>		<b>6</b>
<b>Spring</b>		
BIOS 6642	Introduction to Python Programming	3
BIOL 6764	Biological Data Analysis	4
MOLB 7900	Practical Computational Biology for Biologists: Python	2
BIOS 6310	Practical Clinical Research Informatics	3
BIOE 5420	Special Topics in Bioengineering	1-6
<b>Hours</b>		<b>13-18</b>
<b>Summer</b>		
BSBT 6939	Internship - Technology and Innovation	3-6
<b>Hours</b>		<b>3-6</b>
<b>Total Hours</b>		<b>22-30</b>

## Learning Objectives

- Learn the basics of computer programming.
- Locate, access, analyze and visualize biomedical data set using appropriate tools and programs.
- Understand and apply various machine learning techniques and data analytics for solving real world biological problems.
- Communicate effectively with biomedical researchers and computational data analysts in a team science environment.

## Courses

BIOE 5420 - Special Topics in Bioengineering (1-6 Credits)  
Special topics of particular interest to graduate students in Bioengineering. Prereq: Graduate standing within the Department of Bioengineering or permission of instructor. Repeatable. Max hours: 12 Credits.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 12.

**BIOL 6764 - Biological Data Analysis (4 Credits)**

Addresses quantitative aspects of research design, data collection and analysis in the biological sciences. Emphasizes relationships among probability theory, estimation, testing, inference, and interpretation. Includes intensive computer lab using the statistical programming software R to demonstrate both traditional analytical and contemporary simulation based (permutation, bootstrap, and Bayesian) approaches for inference in biology. Restriction: Restricted to degree-granting graduate programs. Max hours: 4 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to degree-granting graduate programs

**BIOS 6310 - Practical Clinical Research Informatics (3 Credits)**

This course provides students with hands on experience in clinical research informatics involving secondary use of electronic health record (EHR) data, clinical informatics databases, and basic clinical data science as preparation for more advanced informatics or data science coursework.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6601 - Applied Biostatistics I (3 Credits)**

Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 6642 - Introduction to Python Programming (3 Credits)**

This first course in programming using Python covers basic concepts such as variables, data types, iteration, flow of control, input/output, and functions and advanced concepts such as object oriented programming. Statistics related examples, homework and projects may be used.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BSBT 6112 - Introduction to Biocomputing (2 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic dataset. Requisite: Must be simultaneously enrolled in BSBT 6113.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6113 - Data Science with R (1 Credit)**

In this 4 weeks semi-independent study course, you will learn how to use the "tidyverse" programming paradigm to perform data science operation using the programming language R. At the end of the course, you will learn the basic understanding of the fundamental elements of data science, including; wrangling, exploration, visualization and modeling.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6939 - Internship - Technology and Innovation (3-6 Credits)**

The internship provides hands-on learning opportunities for graduate students in institutions related to technology/biotechnology, computer science, engineering, innovation and entrepreneurship. Requisite: (Formerly IDPT 6939) Enrollment with permission only, contact inge.wefes@ucdenver.edu. Instructor Consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**MOLB 7900 - Practical Computational Biology for Biologists: Python (2 Credits)**

Comp. biology class aimed at biology PhD students. Topics covered include: basic practices for coding in python; analysis of standard high-throughput genomic data to study the regulation of gene expression; intro to modeling gene expression; data visualization; communicating computational analysis/results. 3 wks. lecture, lab & recitation

Grading Basis: Letter Grade

Typically Offered: Spring.

**MOLB 7910 - Practical Computational Biology for Biologists: R (2 Credits)**

Comp. biology class aimed at biology PhD students. Topics covered include: basic practices for coding in R; analysis of standard high-throughput genomic data to study the regulation of gene expression; intro to modeling gene expression; data visualization; communicating computational analysis/results. 3 wks. lecture, lab & recitation

Grading Basis: Letter Grade

Typically Offered: Spring.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Tzu Phang, PhD**

Program Director

Tzu.phang@cuanschutz.edu

# Biomedical Science (Certificate)

## Overview

The one-year Graduate Certificate Program in Biomedical Sciences (BiSC) is composed of 12 graduate credits that will have to be earned through four required courses plus two elective credits. The courses cover topics in the biomedical sciences, statistics, R programming, plus an elective science course. Furthermore, students will be required to attend a course on Case Studies in Responsible Conduct of Research.

All these courses are an integral part of the Master's Program in Biomedical Sciences and Biotechnology. Therefore, if a graduate certificate student would later like to enter the Master's Program in Biomedical Sciences and Biotechnology, all certificate credits can be transferred into that program.

## Admissions Requirements

- A bachelor's degree with a minimum GPA of 3.0
- Complete transcripts of undergraduate work and any previous graduate work
- A completed application to Graduate Studies

- Two academic letters of recommendation
- Prior training in biochemistry, molecular biology and genetics

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying biomedical sciences and biotechnology
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Personal statement.
  - Three recommendation letters from people who know your professional, academic and/or personal achievements or qualities well.
- Application Fee: A nonrefundable application fee of \$75.00 (U.S. dollars). Checks or money orders should be made payable to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

Code	Title	Hours
BSBT 6072	Foundations in Biochemistry	1.5
BSBT 6073	Foundations in Molecular Biology	1.5
BSBT 6074	Foundations in Cell Biology	1.5
BSBT 6075	Foundations in Genetics	1.5
<i>The above 4 courses are taught sequentially one after the other, and students should enroll in all 4 courses in the Fall semester.</i>		
BSBT 6065	Case Studies in Responsible Conduct of Research	1
BSBT 6067	Statistics for Biomedical Sciences	2
BSBT 6071	Introduction to R Programming	1
Science Elective (from selected list)	<sup>Any semester</sup>	2
<b>Total Hours</b>		<b>12</b>

## Electives

Code	Title	Hours
BMSC 7810	Core Topics in Biomedical Science (Select from approved topics)	1-6
IMMU 7630	Overview of Immunology	2
BIOL 5494	Population and Evolutionary Genetics	3
BIOL 6764	Biological Data Analysis	4
ENVS 6230	Environmental Epidemiology	3
BIOE 5074	Introduction to Laboratory Animal Research	3
CANB 7610	Pathobiology of Cancer Mini-Course	1
CANB 7620	Histophysiology	3

CSDV 7605	Stem Cells and Development: An Integrated Approach	3-4
EPID 6630	Epidemiology	3
HMGP 7600	Survey of Human Genetics	3-4
NRSC 7610	Fundamentals of Neurobiology	3
PHSC 7345	Nanotechnology & Drug Delivery	2
PHSC 7651	Pharmaceutical Biotechnology	3
STBB 7609	Biophysics & Spectroscopy	3
TXCL 7751	NeuroToxicology	2
BIOL 5144	Medical Microbiology	3

## Learning Objectives

Upon successful completion of their studies, students enrolled in the Biomedical Sciences Graduate Certificate program will be able to:

1. Apply principles of experimental design and problem solving in four focus areas of biomedical sciences.
2. Employ basic tools of R programming.
3. Classify data and use statistical tools to test hypotheses.
4. Recognize and manage ethical challenges related to the responsible conduct of research.

## Courses

BSBT 6065 - Case Studies in Responsible Conduct of Research (1 Credit)

Anyone conducting research using federal funding must study RCR. You'll learn expectations and regulations that permeate science. You'll understand consequences of violations to individuals and society. We'll explore misconduct through interactive video, written and video case studies, and other engaging activities.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

BSBT 6067 - Statistics for Biomedical Sciences (2 Credits)

Learn how and when to apply statistical procedures to answer scientific questions relevant to biomedicine, and how to critically assess statistical data for validity.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

BSBT 6071 - Introduction to R Programming (1 Credit)

Introduction to the statistical programming language R geared primarily to biomedical science students with little to no previous programming experience. Basic features of R as a programming language and as scientific computing platform. Basics of data cleaning, visualization, and analysis.

Grading Basis: Letter Grade

Typically Offered: Spring.

BSBT 6072 - Foundations in Biochemistry (1.5 Credits)

This short course provides a condensed and fast-paced overview of the fundamentals in biochemistry including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6073 - Foundations in Molecular Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in molecular biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6074 - Foundations in Cell Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in cell biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Inge Wefes, PhD**

Program Director

Inge.Wefes@cuanschutz.edu

303-724-7368

**Patricia Goggans**

Program Administrator

Patricia.Goggans@cuanschutz.edu

303-724-5878

# Community-Based Hospice & Palliative Medicine Fellowship (Certificate)

## Overview

The Fellowship in Community Hospice and Palliative Care Certificate is for physicians who have completed at least the first year of the Master of Science Degree in Palliative Care and are on schedule to complete their degree. Physicians that successfully complete the MSPC and the Community Hospice and Palliative Medicine Fellowship Certificate will be Board Eligible to take the HPM Certification Exam and become Board Certified in HPM. The aim of the MSPC and the certificate is to ease suffering worldwide through exemplary palliative care education.

This program's purpose is to develop Board Certified Hospice and Palliative Care physician specialists through innovative educational pedagogies designed to facilitate learning for physicians in up-to-date, evidence-based, interdisciplinary palliative care concepts using a hybrid learning environment that offers flexible online and live application-based approaches. The participants will receive educational support through the University of Colorado faculty and do their clinical work at their unique participating sites.

Program courses are delivered in a virtual and live learning environment that enriches and informs the fellows' palliative clinical work. The program focuses on advancing clinical knowledge; developing clinical wisdom; building an evidence-based palliative care practice; enhancing

communication skills; and addressing physical, psychological, social, and spiritual suffering.

## Admissions Requirements

DOMESTIC APPLICATION DEADLINE: June 15

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying palliative care.
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Educational Goals statement.
  - Two recommendations: to be completed by people who know your professional, academic and/or personal achievements or qualities well. As such, references must be from professional contacts, such as employers, supervisors, former faculty, preceptors, or professional colleagues. References from clergy, family members, friends or politicians will not be accepted.
- Licenses and Certificates: A notarized copy of the applicant's current professional license and a copy of the photo identification used in the license notary process or online verification of the applicant's current professional license. (Biomedical Track only)
- Driver's License: A copy of the applicant's driver's license or state-issued ID.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars). Checks or money orders should be made out to the University of Colorado.
- Interview: After the application is complete a telephone or video interview will be arranged with the applicant and two faculty members. This interview will afford the program the opportunity to understand the needs of the applicant and for the candidate to ask questions. The interview process is designed to assess the applicant's knowledge of the profession, communication, and ability to perform in a positive, professional manner when working with others. To be considered for admission, applicants must participate in the interview process.
- Transcripts: Unofficial copies of all degree-bearing transcripts from post-secondary colleges and/or universities.

International students are not eligible for this certificate program.

## Certificate Requirements

MD or DO degree is required, and at least 5 years of clinical experience preferred.

Fellows in the MSPC/HPM track will spend 30-50% of their time over a minimum of 2 years engaged in the MSPC and meeting the requirements for their clinical practice portfolio. Fellowship rotations will occur on an interrupted and part-time schedule in order to accommodate other professional, academic and personal responsibilities. A part-time schedule will include interrupted weeks, or parts of weeks, of clinical rotations. In accordance with ACGME program requirements, Fellows will complete the equivalent of at least 12 months of training in the subspecialty of HPM.



## Required Coursework

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
CHPM 7001	Comm-Based Hospice and Pall Med Fellowship - A	8
	<b>Hours</b>	<b>8</b>
<b>Spring</b>		
CHPM 7002	Comm-Based Hospice and Pall Med Fellowship - B	8
	<b>Hours</b>	<b>8</b>
<b>Summer</b>		
CHPM 7003	Comm-Based Hospice and Pall Med Fellowship - C	4
	<b>Hours</b>	<b>4</b>
<b>Second Year</b>		
<b>Fall</b>		
CHPM 7004	Comm-Based Hospice and Pall Med Fellowship - D	8
	<b>Hours</b>	<b>8</b>
<b>Spring</b>		
CHPM 7005	Comm-Based Hospice and Pall Med Fellowship - E	8
	<b>Hours</b>	<b>8</b>
<b>Summer</b>		
CHPM 7006	Comm-Based Hospice and Pall Med Fellowship - F	4
	<b>Hours</b>	<b>4</b>
<b>Total Hours</b>		<b>40</b>

## Clinical Requirements for Graduation

- Palliative Medicine New Patient Consultations- a minimum of at least **100 initial consultations** which are submitted and reviewed by faculty.
- **Continuity of Care patient:** see 60 patients across a variety of settings including LTC, ICU, Acute Care, Outpatient, Home Hospice, telehealth visits.
- Hospice Care- This requirement includes Home Hospice visits, Inpatient Hospice Experience and Long-term Care.
  - **Inpatient Hospice/Palliative Care Unit 80 hours (Hours to be tracked in your log)**
  - **25 Home Hospice Visits** (Medicare Certified Hospice Program)
  - **50 IDT meetings** (meetings with people from other disciplines about your patients, one-on-one count, could be IDT in the hospital, LTC or home hospice or you can start your own, these can also be duplicated from new inpatient or continuity if other disciplines present)
- Pediatric Palliative Care (See Pediatric Palliative Care Tab in Patient Log)
  - **5 Pediatric cases**
  - **Observation of a Pediatric Palliative Care program for 1 week**
- During the course, you will participate in **every other week 2-hour nightly seminar** with oral presentation of cases in at least ½ of these sessions. Attendance in 90% of seminars is mandatory.

- **Other scholarly course work** including a mixture of reading, asynchronous video role plays, journal clubs and professional development reflections due every other week.
- 2 360 Evaluations from both Colleagues per course (12 total over 2 years).
- 2 Patient/Family satisfaction surveys from patients (12 total over 2 years).
- At least 1 elective is strongly encouraged. This includes observation of and reflection on at least one experience that adds to fellow's portfolio and supports palliative care practice.

## Learning Objectives

### Communication Skills

The PC CHPM physician demonstrates expertise in relationship centered communication theory and skills to gather and share information, negotiate shared decision making and plans of care, and sustain relationships with palliative care patients/families and healthcare providers.

### Expert Symptom Management Skills (Pain and Non-pain)

The PC CHPM physician demonstrates expert clinical judgment in performing a comprehensive patient assessment, leading to diagnosis development, implementation, and ongoing reassessment with modification of effective, evidence-based care plans utilizing the skills and expertise of the interdisciplinary team (IDT), for all distressing pain and non-pain symptoms experienced by patients with any serious illness.

### Ethics, Advocacy, and Legal Aspects of Care

The PC CHPM physician incorporates knowledge of ethical and legal aspects of palliative care into practice by exhibiting the highest professional standards and by advocating for the rights of patients/families to access optimal palliative care.

### Spiritual, Religious and Existential Aspects of Care

As part of the IDT, the PC CHPM physician Specialist demonstrates and promotes spiritually sensitive care, respecting diversity in all forms, for patients/families and other health care professionals.

### Social and Cultural Aspects of Care

As part of the IDT, the PC CHPM physician demonstrates respect for diverse communities through culturally sensitive skills, recognizing how social and economic barriers and challenges impact the delivery of health care services.

### Psychological Aspects of Care

As part of the IDT, the PC CHPM physician effectively addresses psychological concerns, and promotes access to expanded resources for all patients/families living with any serious illness.

### Integration of Palliative Care for patients throughout the course of any serious illness in all venues

The PC CHPM physician effectively advocates to provide evidence-based palliative care for patients/families and supports and develops expanded resources for all patients/families living with any serious illness.

### Effective Palliative Care Educator

The PC CHPM physician demonstrates knowledge, skills, and applies adult learning principles when providing palliative care education to patients, families, healthcare professionals, and the community.

### Systems Thinking

The PC CHPM physician Specialist demonstrates understanding of the healthcare system to effectively manage and utilize resources to support

patients/families living with any serious illness and advocates for the reform of healthcare systems to provide optimal palliative care.

#### Courses

Code	Title	Hours
CHPM 7001	Comm-Based Hospice and Pall Med Fellowship - A	8
CHPM 7002	Comm-Based Hospice and Pall Med Fellowship - B	8
CHPM 7003	Comm-Based Hospice and Pall Med Fellowship - C	4
CHPM 7004	Comm-Based Hospice and Pall Med Fellowship - D	8
CHPM 7005	Comm-Based Hospice and Pall Med Fellowship - E	8
CHPM 7006	Comm-Based Hospice and Pall Med Fellowship - F	4

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

### F. Amos Bailey MD, FACP FAAHPM

Program Director

Amos.Bailey@cuanschutz.edu

303-724-9674

### Katherine Morrison, MD, FAAHPM

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Katherine.2.morrison@cuanschutz.edu

303 594-5932

### Maurice Scott, MD

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Program Administrator

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303-724-9593

# Dissemination & Implementation Science (Certificate)

## Overview

Dissemination and Implementation (D&I) science is the study of methods and strategies to facilitate the spread, adoption, implementation, and sustainment of evidence-based practices, interventions and policies in real-world and diverse health settings. As a transdisciplinary scientific field, D&I science can address multiple cross-cutting research topics (e.g., reducing disparities in access to and quality of care; use of innovative technologies and data science to improve routine care) and health conditions (e.g., mental health, cancer and cardiovascular disease morbidity and mortality, geriatric care) of high priority. D&I Science also has the potential to make precision health more actionable and relevant and can make the translation of discoveries in this and other high priority areas more rapid.

The D&I Science Graduate Certificate Program is designed to provide pragmatic training to researchers who want to develop competencies in D&I science and practice which can be applied across multiple topic areas and settings in health services, clinical and community health, and public health research. The program is intended to provide researchers

with solid foundational skills in D&I science, as well as intermediate and advanced skills in select D&I competency areas.

The D&I Science Graduate Certificate Program has three sponsoring units. The Adult and Child Consortium for Health Outcomes Research and Delivery Science (ACCORDS) acts as the primary sponsor, and the Clinical Science Graduate Program at the University of Colorado Anschutz Medical Campus acts as the secondary sponsor. The Colorado Implementation Science Center for Cancer Control and Prevention (1 P50 CA244688-01) serves as an additional sponsor. It is coordinated through the ACCORDS Dissemination and Implementation Science Program.

## Admission Requirements

- Degree: BA/BS
- GPA: A minimum of 3.00 is recommended
- Prerequisite courses: N/A

Applicants for the D&I Certificate Program **must submit the following documents** to the program for review:

- Graduate Certificate Application Form – see below for guidance on which form to complete.
- Statements of D&I Interests (**200-word limit per question**):
  - What makes you interested in seeking specialized training in Dissemination and Implementation Science?
  - What do you hope to gain professionally from the certificate program?
- Curriculum Vitae (CV) or Resume
- Transcripts from Highest Degree (current or completed)
  - You will need to contact the academic institution that you attended/are attending to obtain an unofficial or official transcript. The transcript must include a transcript legend. Typically, this is done through the Office of the Registrar but this could vary depending on the school or university.
  - Unofficial transcripts are acceptable for US institution transcripts
  - Official transcripts are required for any transcripts obtained from international institutions. In addition, If your transcript was issued in a language other than English, you must also provide a certified English translation of the transcript. CU Denver does not have a preferred translation provider; we recommend that you use an ATA member company.

When requesting an official transcript from your school and/or a certified translation of your transcript please instruct the school/translation service to send your transcript directly from their office to:

Clinical Science Program

ATTN: Amanda Whiting

University of Colorado Denver

12401 East 17th Avenue, Campus Box B141

Leprino Bldg, Rm 351

Aurora, CO 80045

Official electronic transcripts are encouraged and should be [amanda.g.whiting@cuanschutz.edu](mailto:amanda.g.whiting@cuanschutz.edu) ([https://ucdenverdata.formstack.com/forms/d\\_i\\_certificate\\_program](https://ucdenverdata.formstack.com/forms/d_i_certificate_program))

**Special Request:** Due to the situation with the Coronavirus, we are unable to review transcripts that are mailed to the campus. Please make sure to request electronic transcripts and if those are not available, provide the program with documentation of your efforts.

- **Special guidance for MD applicants** - must include a transcript from an undergraduate degree in addition to the transcript from your MD degree.
- **Special guidance for International applicants (applicants that are NOT US Citizens or US Permanent Residents)**
  - In addition to the general admission requirements listed above, international applicants may need to provide proof of English language Proficiency (ELP).
  - In addition, we currently do not have any research or teaching assistantships to support the educational costs of international students.
  - **We encourage you to contact Galit Mankin (Galit.Mankin@cuanschutz.edu) with your understanding of what your application should include in terms of these materials to confirm.**
- Please note that the D&I Certificate Program does not provide stipends to assist with tuition and/or room and board expenses which are unnecessary for this fully online program.

#### Application Deadlines

- Applications done once a year for the Summer or Fall semesters.
- March 1, 2021 for Summer or Fall semesters (starts June and August respectively)

#### Applications

#### **IMPORTANT – guidance on selecting the appropriate D&I Certificate application:**

- If you are **not currently affiliated with the University of Colorado**, complete the SLATE (University of Colorado Graduate school application) at <https://application.admissions.ucdenver.edu/apply/>.

SLATE applications will open on Feb 1.

If you are a current Current University of Colorado (CU) Graduate Student at Anschutz Medical Campus (AMC) OR Downtown Denver Campus (DC), complete the Formstack application at [https://ucdenverdata.formstack.com/forms/d\\_i\\_certificate\\_program](https://ucdenverdata.formstack.com/forms/d_i_certificate_program) ([https://ucdenverdata.formstack.com/forms/d\\_i\\_certificate\\_program/](https://ucdenverdata.formstack.com/forms/d_i_certificate_program/))

## Certificate Requirements

Complete a total of **12 credit hours over a 3-year period**:

Code	Title	Hours
<i>Complete the following 7 credits:</i>		
CLSC 6750	Designing for Dissemination and Sustainability	2
CLSC 7653	Dissemination and Implementation Research in Health	3
CLSC 6560	Designs and Mixed Methods in Implementation Research	2
<i>Complete 5 Elective credits from the courses below:</i>		
CLSC 7663	Context & Adaptation in D&I Research	2
CLSC 6770	Implementation Science Grant and Article Funding	2
CLSC 6850	Adv Topics: Dissemination and Implementation Sci	1
Electives approved by Certificate Director (variable in length)		

## Learning Objectives

The certificate program courses have been mapped to core D&I competencies including the following:

- recognizing the level of evidence required to justify disseminating a program
- developing a rationale for selecting a D&I model or framework to guide one's study design
- designing pragmatic interventions
- selecting appropriate process/outcome measures
- engaging key stakeholders to select the appropriate implementation strategies for a given context
- using study designs that assess and plan for adaptations, sustainability, and future dissemination
- conducting transparent evaluations of implementation strategies that address generalizability, costs and health equity
- balancing the need for site adaptations with internal validity needs
- use of mixed methods approaches for evaluation of D&I studies.

## Courses

CLSC 6560 - Designs and Mixed Methods in Implementation Research (2 Credits)

This course provides an in-depth examination of study designs, comparative effectiveness research, and qualitative, quantitative and mixed methods approaches to dissemination and implementation research. The focus is application to health care and public health settings.

Grading Basis: Letter Grade

Typically Offered: Fall.

CLSC 6750 - Designing for Dissemination and Sustainability (2 Credits)

This course is one of three that focuses on dissemination and implementation research. This course reviews the organization and financing of interventions for health care systems and public health systems. The role of ethics, evidence and health equity are examined.

Grading Basis: Letter Grade

Typically Offered: Summer.

CLSC 6770 - Implementation Science Grant and Article Funding (2 Credits)

This course provides an in-depth examination of issues in submitting successful grant proposals in Dissemination & Implementation research. The course will build upon good general practices in grant and manuscript preparation and submission.

Grading Basis: Letter Grade

Typically Offered: Summer.

CLSC 6850 - Adv Topics: Dissemination and Implementation Sci (1 Credit)

Provides an overview of intermediate and advanced dissemination and implementation (D&I) science research methods in a small group discussion format. This interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**CLSC 7653 - Dissemination and Implementation Research in Health (3 Credits)**

Introduces dissemination and implementation (D&I) research and practice in the context of health (i.e. translational research in health). This is a graduate level course and students should have a working understanding of study designs and statistics.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**CLSC 7663 - Context & Adaptation in D&I Research (2 Credits)**

This course covers concepts, frameworks, and methods for understanding and assessing context and guiding adaptations as relevant to dissemination and implementation (D&I) health research and practice. Prerequisite - CLSC 7653.

Grading Basis: Letter Grade

Typically Offered: Spring.

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

For questions about the D&I Certificate program content please contact the Program Director. (Amy.Huebschmann@cuanschutz.edu) For questions about the application please contact Galit Mankin. (galit.mankin@cuanschutz.edu)

## Health Ethics & Humanities (Certificate)

### Overview

One of only a few such programs nationwide, the Graduate Certificate in Health Humanities and Ethics is intended to enrich the training of health professions students and graduate students in the humanities and social sciences as well as enhance the expertise of working professionals.

By integrating health humanities and health ethics, the Certificate provides a basis with which to navigate the increasingly complex and nuanced landscape of healthcare through rigorous and relevant explorations of the personal, cultural, and social dimensions of health and disease. In addition to foundational courses in health humanities and health ethics, students can pursue more targeted study in a range of subject areas such as clinical, research or environmental ethics; health communication; medical rhetoric; narrative medicine; literature, film and the visual arts as related to healthcare; or sociological and anthropological approaches to healthcare.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online HEHE application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying palliative care.
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Transcript showing completion of at least a bachelor's degree

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

A total of 15 credit hours in approved courses is required to complete the Certificate in Health Humanities and Ethics.

All students must complete the two required foundation courses (HEHE 5000 and HEHE 5100), which comprise 6 of the total required 15 credit hours.

Selections from the approved elective course list will satisfy the remaining 9 credit hours.

(To count a course toward the Certificate that is not on the approved list requires prior written approval of the Program Director.)

Code	Title	Hours
<b>Core Courses</b>		
HEHE 5000	Foundations of Health Humanities	3
HEHE 5100	Foundations of Health Care Ethics	3
<b>Elective Courses (offered through CU Anschutz)</b>		
HEHE 5250	Topics in Media, Medicine and Society	3
HEHE 5350	Narrative Principles and Practices in Healthcare	3
HEHE 5450	Addressing Health Stigma in Social Contexts	3
HEHE 5550	Independent Study in Health Humanities & Health Ethics	1-3
HEHE 5750	Pain, Its Paradoxes & the Human Condition	3
<b>Elective Courses (offered through CU Denver)</b>		
ANTH 5014	Medical Anthropology: Global Health	3
ANTH 5290	Anthropology and Public Health	3
ANTH 5600	Medical Anthropology	3
ANTH 5800	Special Topics in Medical Anthropology	3-9
COMM 5500	Health Communication	3
COMM 5550	Rhetorics of Medicine & Health	3
ENGL 5745	Humanistic Writing About Medicine and Biology	3
PHIL 5013	Methods and Practices of Graduate Interdisciplinary Humanities	3
PHIL 5242	Bioethics	3
PHIL 5350	Philosophy of Science	3
RLST 5460	Death and Concepts of Afterlife	3
SOCY 5270	SocI Meanings of Reproduction	3
SOCY 5650	Sociology of Adulthood and Aging	3

## Learning Objectives

To understand how different perspectives and disciplines inform what constitutes health and disease and the role of the health professional.

To recognize, resolve and reflect on challenging ethical and social issues in health, healthcare, health policy and research.

To examine the values and meanings of health, disease, illness and disability among patients, families, healthcare providers, and communities.



## Courses

### ANTH 5014 - Medical Anthropology: Global Health (3 Credits)

This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two-course sequence in medical anthropology and global health studies; the second is ANTH 5024. Prereq: Graduate standing. Cross-listed with ANTH 4010. Max Hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

### ANTH 5290 - Anthropology and Public Health (3 Credits)

This course critically explores anthropological approaches to public health problems. Through a number of key issues and case studies, we examine how public health practice can be enhanced through anthropological research, theory and methodology. Prereq: Graduate standing. Cross-listed with ANTH 4290. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

### ANTH 5600 - Medical Anthropology (3 Credits)

Introduces students to the theories and concepts of medical anthropology, the study of human health and illness. Explores conceptions of the body, modalities of healing, the clinical encounter, and new medical technologies. Prereq: Graduate standing. Cross-listed with ANTH 4600. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

### ANTH 5800 - Special Topics in Medical Anthropology (3-9 Credits)

Seminar series on current issues in medical anthropology. Faculty offer a range of different courses, including the political economy of drugs, health and human rights, and reproductive health. Prereq: graduate standing. Repeatable. Cross-listed with ANTH 4800. Max hours: 9 Credits.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

### COMM 5500 - Health Communication (3 Credits)

Examines the role of communication in a wide range of health contexts. Topics include cultural constructions of health and illness, public health communication campaigns, client-provider interactions, telemedicine, community-based health programs and medical journalism. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4500. Term offered: fall, spring. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

Typically Offered: Fall, Spring.

### COMM 5550 - Rhetorics of Medicine & Health (3 Credits)

This senior seminar/bridge class investigates persuasion in contemporary medicine/health care from clinical settings through mass media. Case studies explore contagion, health policy, the body, death, and biopower. The course requires extensive discussion of readings and an original research project. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Cross-listed with COMM 4550. Term offered: fall. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

Typically Offered: Fall.

### ENGL 5745 - Humanistic Writing About Medicine and Biology (3 Credits)

Investigates medical and biological writing over the last two centuries with an emphasis on reception, ethical issues, and the differences between professional and popular writing. Prereq: Graduate standing. Cross-listed with ENGL 4745. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

### HEHE 5000 - Foundations of Health Humanities (3 Credits)

This course explores the relationships among health, medicine, and society as well as the representations of illness, suffering, disability, and death through the lens of literature, the arts and philosophy, paying particular attention to power relationships and categories of difference.

Grading Basis: Letter Grade

Typically Offered: Fall.

### HEHE 5100 - Foundations of Health Care Ethics (3 Credits)

This course provides learners with an opportunity to explore the foundations of health care ethics. The material will cover several different ethical frameworks, with an eye to application to practical problems of health care and population health.

Grading Basis: Letter Grade

Typically Offered: Spring.

### HEHE 5250 - Topics in Media, Medicine and Society (3 Credits)

This interdisciplinary course will explore the interconnections and intersections between medicine and media, investigating a significant collaborative enterprise that characterizes American culture.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### HEHE 5350 - Narrative Principles and Practices in Healthcare (3 Credits)

This course introduces students to the intellectual and clinical discipline of narrative work in healthcare. Students will explore the theoretical foundations of narrative in healthcare and participate in structured workshops to improve close reading of texts and writing skills. Requisite: 008754

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### HEHE 5450 - Addressing Health Stigma in Social Contexts (3 Credits)

This interdisciplinary course will equip students with the tools needed to understand health stigma, to construct an explanation as to why it is so common and to explain what, if anything, should be done to address such stigma. Requisite: 008754

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### HEHE 5550 - Independent Study in Health Humanities & Health Ethics (1-3 Credits)

This independent study will permit students to pursue specialized topics and/or previously studied topics in health humanities and health ethics in greater depth and with more flexible scheduling. Requisite: 008754

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

### HEHE 5750 - Pain, Its Paradoxes & the Human Condition (3 Credits)

This course explores the lived experiences of pain, its paradoxes, and the extent to which it is a key feature of the human condition. Analyses will be drawn from history, religious studies, philosophy, literature, poetry, public health, medicine, and law.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHIL 5013 - Methods and Practices of Graduate Interdisciplinary Humanities (3 Credits)**

The second of three required Master of Humanities core courses, this course introduces beginning graduate students to methodologies and intellectual frameworks for gathering, organizing, and developing interdisciplinary research. Focus is on the application of theories and methods of research, interpretation and analysis in humanistic research through readings that explore philosophical and cultural discourses have altered theory and method. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Bachelors to Masters program (PHIL-BA-BMA). Cross-listed with HUMN/SSCI 5013. Term offered: spring. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Bachelors to Masters program (PHIL-BA-BMA)

**PHIL 5242 - Bioethics (3 Credits)**

Examines some of the major moral issues confronting the nation's health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient's right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as lifesaving vital organs. The springboard for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Bachelors to Masters program (PHIL-BA-BMA). Cross-listed with PHIL 4242, HUMN 5242, SSCI 5242. Term offered: fall. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Bachelors to Masters program (PHIL-BA-BMA)

Typically Offered: Fall.

**PHIL 5350 - Philosophy of Science (3 Credits)**

This course examines some of the central philosophical questions concerning the nature of scientific investigation, such as the logical relation of evidence to hypothesis, the objective adjudication of competing hypotheses, the logical function of modeling in empirical inquiry, the criterion for a classificatory system to underwrite induction and explanation, the explanatory relationships between the differing sciences, as well as the theoretical and pragmatic function of scientific law and its relationship to explanation. Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Bachelors to Masters program (PHIL-BA-BMA). Cross-listed with PHIL 4350. Term offered: spring. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Bachelors to Masters program (PHIL-BA-BMA)

Typically Offered: Spring.

**RLST 5460 - Death and Concepts of Afterlife (3 Credits)**

Examines how the major religious traditions approach the issue of death. Where the Egyptians were fascinated by death, their Mesopotamian and Hebrew neighbors saw no kind of experience continuing after death. Concepts of the Final Judgment Day and the end of the world follow in Zoroastrianism, Christianity, and Islam, while Indian religions developed a sophisticated theory of reincarnation and the "art of dying." Finally, we will turn to Chinese belief in ancestral spirits. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4460. Term offered: fall. Max Hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

Typically Offered: Fall.

**SOCY 5270 - Socl Meanings of Reproduction (3 Credits)**

Reproduction involves more than biological processes, assuming symbolic, political, and ideological meanings. This course examines contested meanings of reproduction, including how people experience reproduction, controversies over who should reproduce (and under what circumstances), and how public policy mediates these conflicts.

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

or undergraduate students in the Sociology Bachelor's to Master's program (SOCI-BA-BMA). Cross-listed with SOCY 4270, WGST 4270 and WGST 5270. Term offered: spring. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate students in the Sociology Bachelor's to Master's program (SOCI-BA-BMA)

Typically Offered: Spring.

**SOCY 5650 - Sociology of Adulthood and Aging (3 Credits)**

Examination of the adult life course—post-adolescence to death, focusing on key social transitions of adulthood (e.g., independence from parents, marriage, retirement), and historical, institutional, and social factors that create variation in their timing, meaning, and individuals' role experiences. Cross-listed with SOCY 4650. Prereq: Graduate standing. Term offered: spring. Max Hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to Graduate and Graduate Non-Degree Majors

Typically Offered: Spring.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Therese Jones, PhD**

Associate Director, Center for Bioethics and Humanities

Program Director, HEHE Certificate

Therese.Jones@cuanschutz.edu

## Palliative Care (Certificate)

### Overview

The Interprofessional Graduate Certificate in Palliative Care along with the Master of Science Degree in Palliative Care aim to ease suffering for those patients and families living with serious illness through exemplary palliative care education.

These programs develop Palliative Care Community Specialists through innovative educational pedagogies designed to facilitate learning for healthcare providers and allied health professionals in up-to-date, evidence-based, interdisciplinary palliative care concepts using an

online virtual learning environment that offers flexible application-based approaches.

Program courses are delivered in an interprofessional learning environment that mirrors the palliative care work setting. The program focuses on advancing clinical knowledge; developing clinical wisdom; building an evidence-based palliative care practice; enhancing communication skills; and addressing physical, psychological, social, and spiritual suffering.

## Admissions Requirements

**DOMESTIC APPLICATION DEADLINE: June 15**

**INTERNATIONAL APPLICATION DEADLINE: April 15**

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying palliative care.
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Educational Goals statement.
  - Two recommendations: to be completed by people who know your professional, academic and/or personal achievements or qualities well. As such, references must be from professional contacts, such as employers, supervisors, former faculty, preceptors, or professional colleagues. References from clergy, family members, friends or politicians will not be accepted.
- Licenses and Certificates: A notarized copy of the applicant's current professional license and a copy of the photo identification used in the license notary process or online verification of the applicant's current professional license. (Biomedical learners only)
- Driver's License: A copy of the applicant's driver's license or state-issued ID.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars). Checks or money orders should be made out to the University of Colorado.
- Interview: After the application is complete a telephone or video interview will be arranged with the applicant and two faculty members. This interview will afford the program the opportunity to understand the needs of the applicant and for the candidate to ask questions. The interview process is designed to assess the applicant's knowledge of the profession, communication, and ability to perform in a positive, professional manner when working with others. To be considered for admission, applicants must participate in the interview process.
- Transcripts: Unofficial copies of all degree-bearing transcripts from post-secondary colleges and/or universities.

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
PALC 6510	Core Concepts, Principles & Communication Skills	3

PALC 6110 or PALC 6111	Basic Pain Assessment & Management: IDT Care or Basic Pain Assessment & Management: IDT Care (AHP)	3
<b>Hours</b>		<b>6</b>
<b>Spring</b>		
PALC 6210 or PALC 6211	IDT Care for Symptoms: Part A or IDT Care for Non-pain Symptoms: Part A (AHP)	3
PALC 6220 or PALC 6221	IDT Care for Symptoms: Part B or IDT Care for Non-Pain Symptoms: Part B (AHP)	3
<b>Hours</b>		<b>6</b>
<b>Total Hours</b>		<b>12</b>

## Learning Objectives

### Communication Skills

The PC Community Specialist demonstrates expertise in relationship centered communication theory and skills to gather and share information, negotiate shared decision making and plans of care, and sustain relationships with palliative care patients/families and healthcare providers.

### Expert Symptom Management Skills

The PC Community Specialist demonstrates expert clinical judgment in performing a comprehensive patient assessment, leading to diagnosis development, implementation, and ongoing reassessment with modification of effective, evidence-based care plans utilizing the skills and expertise of the interdisciplinary team (IDT), for all distressing symptoms experienced by patients with any serious illness.

### Ethics, Advocacy, and Legal Aspects of Care

The PC Community Specialist incorporates knowledge of ethical and legal aspects of palliative care into practice by exhibiting the highest professional standards and by advocating for the rights of patients/families to access optimal palliative care.

### Spiritual, Religious and Existential Aspects of Care

As part of the IDT, the PC Community Specialist demonstrates and promotes spiritually sensitive care, respecting diversity in all forms, for patients/families and other health care professionals.

### Social and Cultural Aspects of Care

As part of the IDT, the PC Community Specialist demonstrates respect for diverse communities through culturally sensitive skills, recognizing how social and economic barriers and challenges impact the delivery of health care services.

### Psychological Aspects of Care

As part of the IDT, the PC Community Specialist effectively addresses psychological concerns, and promotes access to expanded resources for all patients/families living with any serious illness.

### Integration of Palliative Care for patients throughout the course of any serious illness in all venues

The PC Community Specialist effectively advocates to provide evidence-based palliative care for patients/families and supports and develops expanded resources for all patients/families living with any serious illness.

### Effective Palliative Care Educator

The PC Community Specialist demonstrates knowledge, skills, and applies adult learning principles when providing palliative care education to patients, families, healthcare professionals, and the community.

### Systems Thinking

The PC Community Specialist demonstrates understanding of the healthcare system to effectively manage and utilize resources to support patients/families living with any serious illness and advocates for the reform of healthcare systems to provide optimal palliative care.

## Courses

**PALC 6110 - Basic Pain Assessment & Management: IDT Care (3 Credits)**

This course reviews basic pain pathophysiology, assessment, non-pharmacological interventions, and non-opioid and opioid pharmacological pain management. Integrated with IDT topics related to pain such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6111 - Basic Pain Assessment & Management: IDT Care (AHP) (3 Credits)**

Offered jointly with PALC 6110; reviews basic pain pathophysiology, assessment, non-pharmacological interventions, and non-opioid & opioid pharmacological pain management. Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6210 - IDT Care for Symptoms: Part A (3 Credits)**

Course covers the assessment and management of eight common non-pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6211 - IDT Care for Non-pain Symptoms: Part A (AHP) (3 Credits)**

Offered jointly with PALC 6210; assessment/management of eight common non-pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics such as psychological, social & spiritual distress, and ethical standards related to practice. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6220 - IDT Care for Symptoms: Part B (3 Credits)**

This course covers the assessment and management of eight different common non-pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6221 - IDT Care for Non-Pain Symptoms: Part B (AHP) (3 Credits)**  
Offered jointly with PALC 6220; covers assessment & management of eight common non-pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6510 - Core Concepts, Principles & Communication Skills (3 Credits)**

Online and on-campus intensive (some physical presence required) on palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Requirement:

Restricted to PALC MS or certificate students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**F. Amos Bailey MD, FACP FAAHPM**

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303-724-9674

**Nancy Robertson, DNP, ANP-BC, ACHPN**

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**Melissa C. Palmer, LCSW, ACHP-SW, APHSW-C, JD**

Co-Director

Melissa.Palmer@cuanschultz.edu

**Elizabeth "Betty" Downes"**

Finance & Accounting Coordinator

Program Administrator

Elizabeth.Downes@cuanschultz.edu

303-724-2912

## Personalized & Genomic Medicine (Certificate)

### Overview

The Personalized & Genomic Medicine certificate program provides an opportunity for current and future healthcare professionals, researchers and recent graduates of scientific programs to acquire knowledge and skills in the emerging field of personalized medicine.

Personalized medicine is an evolving scientific and clinical reality with the potential to transform healthcare and improve health outcomes. Personalized medicine requires the integration of numerous data sources, including clinical observations and imaging, -omics datasets (e.g., genomic, transcriptomic, epigenomic, metabolomic and proteomic data), and electronic health records. This online certificate program focuses on genomics, including the genetic underpinnings of disease and treatment



response as well as integration of genetic data with other -omics and electronic health data.

After completion of the certificate program, students will have the skills and knowledge to enable them to incorporate the principles of personalized medicine into their research, clinical, and industry careers.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Resume/CV: The applicant's current resume or curriculum vitae, including professional work/practice experience since graduating with a bachelor's degree (or equivalent).
  - Statement of Purpose (2 page maximum) addressing these questions:
    1. Why are you interested in obtaining a Graduate Certificate in Personalized and Genomic Medicine from the University of Colorado Anschutz Medical Campus?
    2. How will the Graduate Certificate in Personalized and Genomic Medicine help you reach your professional and career goals?
    3. Briefly describe your plan for completing the course work on-line and in-person in regards to time commitment for study and to maintain work/life balance.
    4. Briefly describe your previous experience with on-line courses and learning.
- Driver's License: A copy of the applicant's driver's license or state-issued ID.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars). Checks or money orders should be made out to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
PMED 6010	Foundations in Personalized Health	3
PMED 6110	Pharmacogenomics	3
<b>Hours</b>		<b>6</b>
<b>Spring</b>		
PMED 6210	Multi-Omic Approaches in Personalized Medicine	3

BIOS 6310 or PMED 6910	Practical Clinical Research Informatics or Applications and Challenges in Personalized Medicine	3
<b>Hours</b>		<b>6</b>
<b>Total Hours</b>		<b>12</b>

1. Synthesize the knowledge base in personalized medicine, pharmacogenetics, and omic disciplines.
2. Apply the methods of personalized medicine to clinical and research problems.
3. Develop critical thinking skills to be able to examine issues and ideas, and to identify good and bad reasoning in a variety of fields with differing assumptions, contents and methods.

## Courses

PMED 6010 - Foundations in Personalized Health (3 Credits)  
PMED6010 introduces students to the field of personalized medicine and prepares students to integrate this field into a variety of health-related professions. Students will gain the foundational knowledge to successfully apply personalized medicine approaches to scientific research and clinical care.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring.

PMED 6110 - Pharmacogenomics (3 Credits)  
PMED6110 introduces students to pharmacogenetics, which refers to how genetic factors influence drug metabolism and dosing. Students will gain the foundational knowledge to use pharmacogenetics in scientific research and clinical care. Co-Requisite - PMED 6010.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring.

PMED 6210 - Multi-Omic Approaches in Personalized Medicine (3 Credits)  
PMED6210 introduces students to cutting-edge concepts, technologies, analytic methods, and databases for a wide-range of 'omics approaches that form the foundation of personalized medicine. Critical evaluation of literature utilizing 'omics methods for personalized medicine will also be emphasized. Requisite: PMED 6010.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring.

PMED 6910 - Applications and Challenges in Personalized Medicine (3 Credits)  
PMED6910 is the capstone experience for students enrolled in the Personalized and Genomic Medicine Graduate Certificate. Students will expand their knowledge of personalized medicine through exposure to real-world applications and in-depth research into the field. Requisite: PMED 6010.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

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**Ivana V Yang, PhD**  
Program Co-Director

ivana.yang@cuanschutz.edu

# Research Management and Compliance (Certificate)

## Overview

The one-year Graduate Certificate Program in Research Management and Compliance (ReMC) is designed to provide students with focused training on central issues related to an effective research enterprise. Principle investigators are busy with mentoring trainees, writing and reviewing grants and writing papers as well as tending to other issues that require the attention of people with their expertise. Being able to hire professional research assistants who are familiar with the composition and requirements of writing IRB and IACUUC applications (BSBT 6802 Reg Env of Life Science Innovation - Drug Discovery), basic components of tech transfer and innovation (BSBT 6801 Biomedical Entrepreneurship), responsible conduct of research (BSBT 6065) as well as professional project management (BSBT 6061), should be very helpful for their research enterprise. Knowledge in statistics for biomedical sciences (BSBT 6067) should be valuable for data analyses. Depending on the students' prior training, they will have to enroll in either training in scientific writing or in R programming. This knowledge and skills should help certificate holders to obtain positions as professional research assistants inside and outside academia.

## Admissions Requirements

- A bachelor's degree with a minimum GPA of 3.0
- Complete transcripts of undergraduate work and any previous graduate work
- A completed application to Graduate Studies
- Two academic letters of recommendation
- Prior science training and, ideally, some research experience

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying biomedical sciences and biotechnology
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Personal statement.
  - Two recommendation letters from people who know your professional, academic and/or personal achievements or qualities well.
- Application Fee: A nonrefundable application fee of \$75.00 (U.S. dollars). Checks or money orders should be made payable to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Certificate Requirements

Code	Title	Hours
BSBT 6065	Case Studies in Responsible Conduct of Research	1
BSBT 6802	Reg Env of Life Science Innovation - Drug Discovery	1.5
BSBT 6803	Reg Env of Live Science Innovation - Medical Devices	1.5
BSBT 6061	Project Management	2
BSBT 6067	Statistics for Biomedical Sciences	2
BSBT 6071	Introduction to R Programming	1
BSBT 6801	Biomedical Entrepreneurship	3
<b>Total Hours</b>		<b>12</b>

## Learning Objectives

Upon successful completion of their studies, students enrolled in the Research Management and Compliance Graduate Certificate program will be able to:

1. Employ basic tools of R programming.
2. Classify data and use statistical tools to test hypotheses.
3. Explain the central components of successful business strategies in biotechnology and create a business plan.
4. Explain the scientific implications and issues of quality control and regulatory affairs related to drug development, and create a project plan.
5. Recognize challenges in biomedical sciences and biotechnology in real-world settings and contribute to their solutions and advancements.
6. Understand and apply appropriate forms of management that are central for the successful completion of a project.

## Courses

BSBT 6065 - Case Studies in Responsible Conduct of Research (1 Credit)

Anyone conducting research using federal funding must study RCR. You'll learn expectations and regulations that permeate science. You'll understand consequences of violations to individuals and society. We'll explore misconduct through interactive video, written and video case studies, and other engaging activities.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

BSBT 6061 - Project Management (2 Credits)

Provides training in initiating, executing & closing a project, including the management of scope, time, cost, human resources, communication, risk and more. Highly interactive intensive course prepares students for Certified Project Management exam (internationally recognized certification). Taught by Project Management Professional.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6067 - Statistics for Biomedical Sciences (2 Credits)**

Learn how and when to apply statistical procedures to answer scientific questions relevant to biomedicine, and how to critically assess statistical data for validity.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6071 - Introduction to R Programming (1 Credit)**

Introduction to the statistical programming language R geared primarily to biomedical science students with little to no previous programming experience. Basic features of R as a programming language and as scientific computing platform. Basics of data cleaning, visualization, and analysis.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6801 - Biomedical Entrepreneurship (3 Credits)**

The course addresses the essential elements of bioscience and health innovation and entrepreneurship. Prerequisites: An undergraduate degree in science, technology, business, engineering or math. Cross-listed with ENTP 6801

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**BSBT 6802 - Reg Env of Life Science Innovation - Drug Discovery (1.5 Credits)**

This course is designed to familiarize biomedical scientists and those interested in the business of science with the fundamentals of U.S. and international regulatory affairs regarding drug development. Focus is the development of products, such as drugs, devices, diagnostic tests, and health information software, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6803 - Reg Env of Live Science Innovation - Medical Devices (1.5 Credits)**

This course is designed to familiarize biomedical scientists, those interested in the business of science with the fundamentals of U.S. and international regulatory affairs for biomedical and healthcare products.

Focus is the development of products, such as Medical, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

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Program Director

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**Patricia Goggans**

Program Administrator

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303-724-5878

## Graduate School Masters Programs Overview

Master's programs offer students the opportunity to strengthen their academic preparation for medical or further graduate school, gain the skills necessary to advance or change careers, or enter careers where a Master's is the terminal degree. Most Master's degrees are self-funded and can be undertaken as full- or part-time endeavors.

Detailed descriptions of each program and their admissions requirements can be found on the Masters Program's page.

The following Masters programs are available through the Graduate School at the CU Anschutz Medical Campus:

- Biomedical Science & Biotechnology (MS) (p. 191)
- Biostatistics (MS) (p. 197)
- Clinical Science (MS) (p. 197)
- Epidemiology (MS) (p. 199)
- Genetic Counseling (MS) (p. 199)
- Health Services Research, Policy, & Administration (MS) (p. 204)
- Modern Human Anatomy (MS) (p. 204)
- Palliative Care (MS) (p. 207)
- Pharmaceutical Sciences (MS) (p. 212)

## Biomedical Science & Biotechnology (MS)

### Biomedical Science & Biotechnology Overview

The Master's program in Biomedical Sciences and Biotechnology (BSBT) provides students with a broad education and training that should prepare them for research or research-related jobs in academia or industry, or for further training in graduate or professional programs.

The BSBT Program was designed and is recognized by the National Professional Science Master's Association as a Professional Science Master's Program (PSM), the first such program in the CU system. The program trains students beyond the STEM disciplines of biomedical sciences and biotechnology by requiring training also in arenas that are a) auxiliary to these disciplines, such as scientific writing and project management, and b) informative about biotechnology related components in business and regulatory affairs.

### Microbiology & Immunology Track Overview

The Immunology and Microbiology Program Plan will provide students with a focused education in immunology and microbiology as well as laboratory skills. The goal will be to enhance career advancement in education or industry or prepare a student for a career in research, including further training in graduate and professional programs. Importantly, this program will provide extensive hands-on research experience, where students will be trained in research laboratories located within the department of Immunology and Microbiology at the University of Colorado School of Medicine. Students will complete 38 units that include core course work, electives and participation in cutting-edge research, as well as write and defend a thesis.

## Structural Biology Track Overview

The Structural Biology and Biochemistry track will provide students with graduate level training in structural biology, biophysics and mechanistic biochemistry with an emphasis on laboratory research. Students will acquire a solid foundation and specialized skills in biomedical, biophysical, and structural sciences that will be preparation for further education in graduate and professional programs as well as a career in academic research or industry. The curriculum includes 38 units of core course work, electives and participation in cutting-edge research in the laboratory of an STBB faculty member. Students will demonstrate original investigation showing critical judgment, as well as familiarity with tools and methods of research, through preparation of a dissertation that will be defended prior to obtaining the degree.

## Admission Requirements

### General Track Admission Requirements

- A bachelor's degree with a minimum GPA of 3.0
- Official General GRE or MCAT (not required)
- Complete transcripts of undergraduate work and any previous graduate work
- A completed application to Graduate Studies
- Three academic letters of recommendation
- Letter of intent describing in which way the program could support the student's next career steps and which kind of prior training the student acquired in biochemistry, molecular biology, cell biology and genetics
- Application Fee: A nonrefundable application fee. Checks or money orders should be made payable to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

#### OR

Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu) (preferred)

International students must meet ALL of the requirements above and those required by International Admissions.

### Microbiology & Immunology Track Admission Requirements

- A bachelor's degree with a minimum GPA of 3.0
- Official General GRE or MCAT (both optional)
- Complete transcripts of undergraduate work and any previous graduate work
- A completed application to Graduate Studies
- Three academic letters of recommendation
- Letter of intent
- Strong background in biological sciences. BA/BA in molecular biology, cell biology, genetics, immunology, microbiology or equivalent specialty

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying biomedical sciences and biotechnology
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Personal statement.
  - Three recommendation letters from people who know your professional, academic and/or personal achievements or qualities well.
- Application Fee: A nonrefundable application fee of \$75.00 (U.S. dollars). Checks or money orders should be made payable to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

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Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

### Structural Biology Track Admission Requirements

- A bachelor's degree with a minimum GPA of 3.0
- Official General GRE or MCAT (both optional)
- Complete transcripts of undergraduate work and any previous graduate work
- A completed application to Graduate Studies
- Three academic letters of recommendation
- Letter of intent
- Training in physics, organic chemistry, biochemistry

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying biomedical sciences and biotechnology
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Personal statement.
  - Three recommendation letters from people who know your professional, academic and/or personal achievements or qualities well.
- Application Fee: A nonrefundable application fee of \$75.00 (U.S. dollars). Checks or money orders should be made payable to the University of Colorado.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
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Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Curriculum

The Professional Science Master's Program in Biomedical Sciences and Biotechnology requires a total of 38 credits that full-time students can earn in two years. However, students can also enroll part time. An enrollment for a minimum of 5 credits is required for financial aid eligibility.

In addition to the science courses, in the General BSBT Program, students are required to enroll in professional development courses (Plus Courses) such as biomedical entrepreneurship, project management and regulatory affairs. These Plus Courses provide additional training that is very much valued by employers inside and outside academia.

The mandatory internship requires students to apply their base science and professional training in a hands-on, real-world setting. In consultation with the Program Director, students choose an internship that suits their future career aspirations. For example, students who are interested in a career in research can pursue an internship in an academic lab or a company. Students can also carry out an internship in a biotech business setting, regulatory affairs or technology transfer. Employers inside and outside academia often view the internship as an extended interview, and after graduation, quite a number of our graduates stayed at their internship site for employment. Some students have also used our program successfully as a stepping stone towards medical or DO school or a PhD program.

38 credits are required for graduation in the BSBT-PSM Program, and graduate students must maintain an overall GPA of at least 3.0 ("B"). Courses with the grade of "C" are not accepted for graduation.

## General Track

### First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
BSBT 6065	Case Studies in Responsible Conduct of Research	1
BSBT 6072	Foundations in Biochemistry	1.5
BSBT 6073	Foundations in Molecular Biology	1.5
BSBT 6074	Foundations in Cell Biology	1.5
BSBT 6075	Foundations in Genetics	1.5
<b>Hours</b>		<b>7</b>
<b>Spring</b>		
BSBT 6067	Statistics for Biomedical Sciences	2
Choose 1 course from the following:		
BSBT 6071	Introduction to R Programming	
BSBT 6113	Data Science with R	
BSBT 6802	Reg Env of Life Science Innovation - Drug Discovery	
BIOL 5024	Introduction to Biotechnology	3

BIOL 5125	Molecular Biology Lab	3
<b>Hours</b>		<b>8</b>
<b>Total Hours</b>		<b>15</b>

### Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
ENGL 5175	Writing in the Sciences	3
PHSC 7330	Development of Drugs and Biologics	3
BSBT 6803	Reg Env of Live Science Innovation - Medical Devices	1.5
<b>Hours</b>		<b>7.5</b>
<b>Spring</b>		
BSBT 6061	Project Management	2
BSBT 6801	Biomedical Entrepreneurship	3
BSBT 6939	Internship - Technology and Innovation Section 001	3-6
<b>Hours</b>		<b>8-11</b>
<b>Total Hours</b>		<b>15.5-18.5</b>

## Microbiology & Immunology Track

### First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
BSBT 6065	Case Studies in Responsible Conduct of Research	1
BSBT 6072	Foundations in Biochemistry	1.5
BSBT 6073	Foundations in Molecular Biology	1.5
BSBT 6074	Foundations in Cell Biology	1.5
BSBT 6075	Foundations in Genetics	1.5
BMSC 7810	Core Topics in Biomedical Science Section 002	1-6
IMMU 7630	Overview of Immunology	2
<b>Hours</b>		<b>10-15</b>
<b>Spring</b>		
BSBT 6070	Mini-Research Rotations	3
BSBT 6064	Scientific Writing	1
Choose either:		
MICB 7703	Molecular Mechanisms of Bacterial Disease	
MICB 7701	Molecular Virology and Pathogenesis	3
<b>OR</b>		
IMMU 7662	Immunology	
BMSC 7810	Core Topics in Biomedical Science Section 006 (Inflammation)	1-6
<b>Hours</b>		<b>8-13</b>

**Summer**

BSBT 6069	Laboratory Research in Immunology and Microbiology	1-6
<b>Hours</b>		<b>1-6</b>
<b>Total Hours</b>		<b>19-34</b>

**Second Year**

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
BSBT 6061	Project Management	2
BSBT 6069	Laboratory Research in Immunology and Microbiology	1-6
<b>Hours</b>		<b>3-8</b>
<b>Spring</b>		
BSBT 6071	Introduction to R Programming	1
BSBT 6067	Statistics for Biomedical Sciences	2
BSBT 6069	Laboratory Research in Immunology and Microbiology	1-6
<b>Hours</b>		<b>4-9</b>
<b>Total Hours</b>		<b>7-17</b>

**Structural Biology Track****First Year**

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
BSBT 6065	Case Studies in Responsible Conduct of Research	1
BSBT 6072	Foundations in Biochemistry	1.5
BSBT 6073	Foundations in Molecular Biology	1.5
BSBT 6074	Foundations in Cell Biology	1.5
BSBT 6075	Foundations in Genetics	1.5
BSBT 6076	Research Explorations	1
STBB 7660	Structure Seminar	1
BMSC 7810	Core Topics in Biomedical Science <sup>Section 001; Core Topics A</sup>	1-6
<b>Hours</b>		<b>10-15</b>
<b>Spring</b>		
STBB 7608 or STBB 7609	Molecular Interactions or Biophysics & Spectroscopy	3
BSBT 6068	Laboratory Research in Structural Biology	1-6
STBB 7631	Molecular Structure A	1.5
BSBT 6076	Research Explorations	1
<b>Hours</b>		<b>6.5-11.5</b>
<b>Total Hours</b>		<b>16.5-26.5</b>

**Second Year**

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
STBB 7631	Molecular Structure A <sup>Section 004</sup>	1.5
STBB 7660	Structure Seminar	1

BSBT 6068	Laboratory Research in Structural Biology	1-6
<b>Hours</b>		<b>3.5-8.5</b>
<b>Spring</b>		
BSBT 6068	Laboratory Research in Structural Biology	1-6
STBB 7660	Structure Seminar	1
<b>Hours</b>		<b>2-7</b>
<b>Total Hours</b>		<b>5.5-15.5</b>

**Learning Objectives****Learning and Training Goals**

Upon successful completion of their studies, students enrolled in the Biomedical Sciences and Biotechnology Master's Program will be able to:

- Apply principles of experimental design and problem solving in the biomedical sciences
- Apply statistical tools for data composition, mining and analysis
- Employ state-of-the-art techniques in biomedical sciences
- Design strategies for rational drug design
- Conduct research in an ethical manner
- Engage in critical analysis of the scientific literature
- Apply the principles of project management
- Understand and operate in the regulatory environment of life science innovation
- Analyze the process of biomedical entrepreneurship in academic, government, and corporate settings
- Write a well-supported, well-reasoned scientific or technical paper

**Courses**

BIOL 5024 - Introduction to Biotechnology (3 Credits)

Introduces aspects of biotechnology within a historical context, including medical, forensic, agricultural and microbial biotechnology. Addresses principles behind state-of-the-field techniques in recombinant DNA technology, bioinformatics, proteomics and genomics. Biotechnology regulations and ethics will also be discussed. Restriction: Restricted to degree granting graduate programs on the downtown campus as well as the School of Medicine on the Anschutz Medical campus. Cross-listed with BIOL 4024. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to degree granting graduate programs on the downtown campus as well as the School of Medicine on the Anschutz Medical campus.

BIOL 5125 - Molecular Biology Lab (3 Credits)

Provides hands-on experiences in molecular biology and an appreciation for using the tools of molecular biology to study biological systems. Emphasis is placed on DNA cloning, PCR, mRNA and protein detection in the context of gene editing. Experimental design and the theories underlying the techniques are also discussed. Restriction: Restricted to degree granting graduate programs on the downtown campus as well as the School of Medicine on the Anschutz Medical campus. Cross-listed with BIOL 4125. Term offered: spring. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to degree granting graduate programs on the downtown campus as well as the School of Medicine on the Anschutz Medical campus.

Typically Offered: Spring.

**BSBT 6061 - Project Management (2 Credits)**

Provides training in initiating, executing & closing a project, including the management of scope, time, cost, human resources, communication, risk and more. Highly interactive intensive course prepares students for Certified Project Management exam (internationally recognized certification). Taught by Project Management Professional.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6064 - Scientific Writing (1 Credit)**

Taught by a biomedical researcher and a professional writing instructor, this 15-hour (3-week) course focuses on developing a framework for successful scientific writing practices, including how to effectively structure arguments, how to write grant proposals and more.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6065 - Case Studies in Responsible Conduct of Research (1 Credit)**

Anyone conducting research using federal funding must study RCR. You'll learn expectations and regulations that permeate science. You'll understand consequences of violations to individuals and society. We'll explore misconduct through interactive video, written and video case studies, and other engaging activities.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6067 - Statistics for Biomedical Sciences (2 Credits)**

Learn how and when to apply statistical procedures to answer scientific questions relevant to biomedicine, and how to critically assess statistical data for validity.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6068 - Laboratory Research in Structural Biology (1-6 Credits)**

The Course BSBT 6068, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on structural biology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

Typically Offered: Fall, Spring, Summer.

**BSBT 6069 - Laboratory Research in Immunology and Microbiology (1-6 Credits)**

The Course BSBT 6069, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on immunology and microbiology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**BSBT 6070 - Mini-Research Rotations (1-3 Credits)**

The Course BSBT 6070, Mini-Research Rotations, with allow graduate students to learn in three different laboratories about research in immunology and microbiology.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring.

**BSBT 6071 - Introduction to R Programming (1 Credit)**

Introduction to the statistical programming language R geared primarily to biomedical science students with little to no previous programming experience. Basic features of R as a programming language and as scientific computing platform. Basics of data cleaning, visualization, and analysis.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6072 - Foundations in Biochemistry (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in biochemistry including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6073 - Foundations in Molecular Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in molecular biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6074 - Foundations in Cell Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in cell biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6075 - Foundations in Genetics (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in genetics including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6076 - Research Explorations (1 Credit)**

This course allows for exploration of SBB research labs in a "mini-rotation" format, through meeting faculty, reading literature and participating in lab group meetings and research in order to choose a research lab and prepare a short research proposal.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6801 - Biomedical Entrepreneurship (3 Credits)**

The course addresses the essential elements of bioscience and health innovation and entrepreneurship. Prerequisites: An undergraduate degree in science, technology, business, engineering or math. Cross-listed with ENTP 6801

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**BSBT 6802 - Reg Env of Life Science Innovation - Drug Discovery (1.5 Credits)**

This course is designed to familiarize biomedical scientists and those interested in the business of science with the fundamentals of U.S. and international regulatory affairs regarding drug development. Focus is the development of products, such as drugs, devices, diagnostic tests, and health information software, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6939 - Internship - Technology and Innovation (3-6 Credits)**

The internship provides hands-on learning opportunities for graduate students in institutions related to technology/biotechnology, computer science, engineering, innovation and entrepreneurship. Prerequisite: (Formerly IDPT 6939) Enrollment with permission only, contact inge.wefes@ucdenver.edu. Instructor Consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**ENGL 5175 - Writing in the Sciences (3 Credits)**

Provides rhetorical analyses of scientific discourse and student practice in writing research reports and proposals. Restriction: Restricted to students at the graduate level (including non-degree and Anschutz Medical Campus programs). Cross-listed with ENGL 4175. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to students at the graduate level (including non-degree and Anschutz Medical Campus programs).

**BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**

Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.

Grading Basis: Letter Grade

Repeatable. Max Credits: 20.

AMC-PHD PhD Students only

Typically Offered: Fall.

**IMMU 7630 - Overview of Immunology (2 Credits)**

An overview course in immunology for non-immunology-program graduate students. The focus is human relevance and the practical use of immunology in a variety of fields. Students gain experience applying immunological knowledge to their own area of interest.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IMMU 7662 - Immunology (6 Credits)**

This course covers the basic principles of the immune system. Included are discussions on (I) the innate and adaptive immune responses, (II) the molecular and cellular basis of immune specificity and (III) aspects of clinical immunology.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7701 - Molecular Virology and Pathogenesis (3 Credits)**

Topics in this course include viral structure and genome organization, replication and expression of viral genomes, mechanism of action of tumor viruses, molecular aspects of virus-host cell interactions, animal models of infectious diseases and pathogenesis of human viruses. Prereq: MICB 7706, MICB 7705 are desirable but not required. Restriction: Permission of Instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7703 - Molecular Mechanisms of Bacterial Disease (3 Credits)**

The course focuses on molecular processes that bacteria utilize to cause disease in humans. The course content will use specific examples from pathogenic bacteria to illustrate common virulence mechanisms utilized to initiate, maintain and survive interactions with host cells. Prereq: Recommended Fundamentals of Microbiology Restrictions: Permission of the instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHSC 7330 - Development of Drugs and Biologics (3 Credits)**

A survey course designed to introduce students to pharmacokinetic and pharmacodynamics principals used in drug research and development by faculty of the Skaggs School of Pharmacy, Department of Pharmaceutical Sciences. The Phoenix Winnonlin Computer software, is used to complete homework. Cross listed with TXCL 7330

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7608 - Molecular Interactions (3 Credits)**

Provides chemical/physical basis for protein structure, folding, function & stability; presents methods/principles of protein/peptide purification & enzyme catalysis including electron transfer & mutagenesis. The role of molecular dynamics & use of molecular simulations in the investigations of protein-ligand/protein-protein interactions. Cross-listed with PHSC 7608.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7609 - Biophysics & Spectroscopy (3 Credits)**

This course will teach fundamentals of modern molecular spectroscopies and biophysical techniques as applied to biomolecules and the structural/dynamic information they afford. Cross listed with PHSC 7609

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7631 - Molecular Structure A (1.5 Credits)**

Gain an in-depth understanding of the underlying principles of an NMR experiment, so that student can turn NMR theory into NMR practice for their research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7660 - Structure Seminar (1 Credit)**

Seminar series provides a forum for the presentation of scientific experiments and information in structural biology by faculty, postdoctoral fellows and graduate students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

Policies

## Contact Us

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**General Track:**



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**Structural Biology Track:****Mair Churchill, PhD**

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## Biostatistics (MS)

### Overview

This program emphasizes the applied and theoretical nature of biostatistics. In addition to courses in theory, statistical computing, consulting, analysis of clinical trials, and longitudinal and survival data, you'll be exposed to a wide variety of research areas including statistical genetics and genomics, causal inference, infectious disease, and cancer research. During the program, you'll get involved in research with a faculty mentor as part of your thesis or research paper. You'll also have the opportunity to specialize in one of two minor areas within the MS—Statistical Genomics and Data Science Analytics.

To learn more about the **Master of Science in Biostatistics**, please click here (p. 132) to view the information within the Colorado School of Public Health portion of the academic catalog.

## Clinical Science (MS)

### Overview

This program provides learning in new fields and acquisition of skills in clinical research to prepare clinicians for careers in clinical and translational sciences. Didactic course work and a mentored research project aimed to provide a strong foundation in:

- computational and statistical tools
- clinical epidemiology
- clinical research study design
- health services and outcomes research
- biomedical ethics

## Admission Requirements

Qualified clinicians who have already earned either a professional doctoral degree (e.g., MD, DO, DDS, PharmD) or a clinically-related bachelor's or master's degree (e.g., nursing, pharmacy, physical therapy) are eligible to apply to this program.

**Application Deadlines**

- **February 1st** to be considered for admission in following summer or fall semesters

- **May 1st** for following fall semester
- **October 1st** for following spring semester

**Minimum Criteria for Admission**

- An undergraduate GPA of at least 3.0 (on a 4.0 scale).
- An acceptable and verifiable GRE, MCAT or PCAT score or earned MS/ MPH or PhD from an accredited US School
- Clinically related bachelor's, master's or professional doctoral degree. Individuals without a clinically related degree but with an exceptional background and relevant experience in the health care field are encouraged to contact one of the Executive Leadership team members to discuss their interest further.

**International Applicant Additional Admission Criteria**

In addition to the general admission requirements listed above, international applicants must meet additional requirements dictated by the University.

Please note that the Clinical Science Program does not provide stipends to assist with tuition and/or room and board expenses. In addition we currently do not have any research or teaching assistantships to support the educational costs of international students.

**Applying**

The application package for the MSCS program is available electronically one month prior to the admission cycle deadline.

The application package **must** include the following:

- **Upload A:** CV- Include your CV that includes your education and training, awards, publications, presentations, grants, research experience and other scholarly activity.
- **Upload B:** Personal Statement- Introduce yourself, describe your previous experience(s) in research, and non-academic, professional, and/or community experiences you consider important that highlight your contributions, growth and factors strengthen the likelihood of success in the program. Ensure that you provide a paragraph describing the general areas of research you anticipate conducting as part of your MSCS and name your mentor(s) that will support you. Include a description of how this program will enhance your career.
- **Three recommendation letters** (Once you submit your application online, your references will receive an e-mail explaining how to upload their letters to the on-line application system)
- **Official transcripts** from all higher education institutions (even if no degree was awarded). Students are not permitted to personally issue, send or deliver transcripts to program staff: All transcripts must be officially issued/sealed by and sent from the originating college/university institution. Therefore, when requesting an official transcript from your school, **please instruct the school to send your transcript directly from their office to:**
  - Clinical Science Program  
ATTN: Amanda Whiting  
University of Colorado Denver  
12401 East 17th Avenue, Campus Box B141  
Leprino Bldg, Rm 351  
Aurora, CO 80045
- **Official electronic transcripts are encouraged** and should be e-mailed to amanda.g.whiting@cuanschutz.edu

**Special Request:** Due to the situation with the Coronavirus, we are unable to review transcripts that are mailed to the campus. Please make sure to

request electronic transcripts and if those are not available, provide the program with documentation of your efforts.

## Degree Requirements

- a minimum of 30 credit hours, of which no less than 4 and no more than 6 must be thesis/research hours
- defense/final exam of a thesis or publishable paper
- students have 8-11 elective credit hours to allow for tailoring of coursework

Code	Title	Hours
BIOS 6601	Applied Biostatistics I	3
BIOS 6602	Applied Biostatistics II	3
<i>Choose 1 of the following:</i>		
BIOS 6648	Design and Conduct of Clinical Research	
EPID 6626	Research Methods in Epidemiology	
BIOS 6623	Advanced Data Analysis	
EPID 6631	Analytical Epidemiology	
CLSC 6210	Research Seminars in Clinical Science	1
CLSC 6270	Critical Appraisal Seminars in Clinical Science	1
CLSC 7101	Grant Writing I	1
CLSC 7150	Ethics and Responsible Conduct of Research	1
EPID 6630	Epidemiology	3
CLSC 6699	Masters Research Project: Publishable Paper	1-6
or CLSC 6950	Masters Research Project: Thesis	

- Core course credits: 16
- Thesis/Research credits: 4-6
- Elective course credits: 8-10
- **Total required credit hours for degree: 30**

## Learning Objectives

- Perform human research adhering to legal, ethical and regulatory principles and and guidelines
- Critically appraise existing literature and sources of information
- Apply evidence based practice principals
- Accurately select, use and interpret commonly used statistics
- Apply and use appropriate study designs and methods to address research questions/hypotheses
- Identify and measure clinically relevant and meaningful outcomes
- Design and conduct research studies
- Publish research-based manuscripts to peer-reviewed journals
- Prepare and submit grant proposals
- Provide constructive reviews and feedback to colleagues
- Demonstrate effective communication and leadership skills
- Participate in interdisciplinary collaboration

## Courses

### BIOS 6601 - Applied Biostatistics I (3 Credits)

Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

### BIOS 6602 - Applied Biostatistics II (3 Credits)

A continuation of BIOS 6601 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively. Multiple optional lab sessions offered.

Prerequisite: BIOS 6601

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### BIOS 6623 - Advanced Data Analysis (3 Credits)

This course teaches the students how to be effective collaborators. Students will learn to modify project hypotheses to be statistical hypotheses. The students will identify and perform the appropriate data analyses and communicate their analyses both verbally and in writing. prerequisite: BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612 or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

### BIOS 6648 - Design and Conduct of Clinical Research (3 Credits)

Design and conduct of clinical research studies. Intended for non-biostatistics students. Topics include: specifying the research question, study endpoints, study populations, study interventions, sample size evaluation, and choice of comparison groups. Common study designs and methods for study conduct are described. Prerequisite: BIOS 6601 or BIOS 6611 or consent of instructor. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

### CLSC 6210 - Research Seminars in Clinical Science (1 Credit)

This course provides an overview of the types of clinical translational studies being conducted by senior CLSC doctoral students. The interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages of training, mentors and faculty.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

### CLSC 6270 - Critical Appraisal Seminars in Clinical Science (1 Credit)

This course provides an overview of the approaches for critically appraising common study designs published in the clinical and translational sciences literature, as well as other sources of information.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 6950 - Masters Research Project: Thesis (1-6 Credits)**

During this course students plan, execute, and write the Final Research Project in the form of a Masters thesis. In addition, students will prepare for the Final Research Project Examination. This is a capstone course.

Pre-requisite: CLSC 7653

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 6699 - Masters Research Project: Publishable Paper (1-6 Credits)**

During course students working with his/her research mentor and research project committee to plan, execute, write Final Research Project in form of a publishable paper. In addition, students prepare for Final Research Project Examination. This is a capstone course. Prerequisite: Consent of program. BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612, CLSC 7150, EPID 6630.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 7101 - Grant Writing I (1 Credit)**

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601 and EPID 6630. Course Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)**

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**EPID 6626 - Research Methods in Epidemiology (3 Credits)**

Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research are the focus of this class. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies. Prereq: BIOS 6601, BIOS 6680, EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6630 - Epidemiology (3 Credits)**

This course provides an introduction to descriptive and analytic methods in epidemiology and their application to research, preventive medicine and public health practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EPID 6631 - Analytical Epidemiology (3 Credits)**

Fundamental analytical skills for assessing and reporting disease status, determinants of disease and their impact on public health including determining rates of disease occurrence, measures of associations between exposures and disease, and techniques for identifying and correcting for misclassifications, effect modifiers and confounder.

Prerequisites: EPID 6630 and BIOS 6601 or BIOS 6611

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

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## Epidemiology (MS)

### Overview

In this program, you'll learn about the causes, distribution, and control of diseases in populations, with an emphasis on methodology. In epidemiology, we're passionate about providing the scientific evidence that can save lives. And as a student in the department, you'll have access to faculty with a wide range of expertise—from food safety, to diabetes, to gene-environment interactions, we do it all.

To learn more about the **Master of Science in Epidemiology**, please click here (p. 133) to view the information within the Colorado School of Public Health portion of the academic catalog.

## Genetic Counseling (MS)

### Overview

We offer a 21 month (5 semester) program of graduate study leading to the Master of Science (M.S.) degree. The program is fully accredited by the Accreditation Council for Genetic Counseling (ACGC) for the training of master's level genetic counselors.

The comprehensive curriculum combines in-depth didactic coursework in the scientific, clinical, psychosocial and professional practice aspects of genetic counseling with extensive, hands-on clinical experience in pediatric, prenatal, adult and specialty genetics clinics.

Clinical training is provided through:

- Children's Hospital Colorado
- University of Colorado Hospital in the Anschutz Centers for Advanced Medicine and University of Colorado Cancer Center

- Telehealth Genetics Clinics serving patients throughout Colorado
- And other area genetic counseling centers

All students participate in clinical case conferences, genetics seminars, journal club, and clinical research activities.

The program's graduates are in very high demand and typically receive employment offers prior to graduation. They work throughout the U.S. and Canada, and in all areas of genetic counseling practice. Their performance on the American Board of Genetic Counseling (ABGC) board certification examination is excellent, with a first-time passing rate of 100% for the past 6 years (2016-present). The program's attrition rate during the same period is zero.

## Admissions Requirements

1) Fulfillment of the academic requirements for regular admission to the Graduate School:

- A baccalaureate degree or its equivalent from a college or university of recognized standing in the biological sciences, psychology, social work, nursing or a related field.
- MINIMUM undergraduate grade point average of 3.0 on a 4.0 scale.

2) Completion of the online application form and submission of supporting materials. Access the online application website at: <https://graduateschool.ucdenver.edu/admissions/apply>

3) FOUR letters of recommendation are required. Recommendations should be requested from individuals who know the applicant in an academic or professional context and can directly attest to the applicant's academic performance, professional abilities, and potential for success as a graduate student and genetic counselor. Preferably, at least two of the recommendations should be from academic sources (course professors, major/academic advisor, research mentor, thesis advisor), while others should be from supervisors in volunteer/advocacy or professional contexts. Recommendations from family members and personal/family friends are strongly discouraged.

Please remind recommenders that providing specific narrative discussion about the candidate's performance and qualifications is extremely helpful, in addition to the ratings requested on the recommendation form.

Please allow your recommenders adequate time to write and submit your recommendations. Recommendations submitted after our January 1 deadline will not be accepted. All recommendations are subject to verification of authenticity.

- The application site provides instructions for sending requests to your recommenders and for sending follow-up reminders to them, if needed, prior to the application deadline. This online system enables the recommender to complete a secure, online recommendation and submit it directly to the online system. Please plan ahead! If you wait until too close to the deadline to request your recommendations, your recommenders may not have adequate time to submit their materials prior to the deadline and your application cannot be reviewed. It is the responsibility of the applicant to ensure that these materials have been submitted prior to the deadline.
- An official set of recommendation letters submitted directly from a school career center is acceptable.
- Recommendations that have been in the possession of the applicant cannot be accepted.

4) ONE official copy of each transcript must be sent directly from all colleges and universities attended (degree and non-degree), regardless of the number of courses taken. Electronic submission of official transcripts by the registrar's office is also acceptable; please email electronic transcripts to [GraduateAdmissions@ucdenver.edu](mailto:GraduateAdmissions@ucdenver.edu) or [Elizabeth.Downes@cuanschutz.edu](mailto:Elizabeth.Downes@cuanschutz.edu). If the applicant has completed a study abroad program, transcripts from the host institution overseas should also be requested, even if courses are reported on the main undergraduate transcript. Transcripts marked "issued to student" will only be accepted if they are in their original sealed (unopened) envelopes as issued by the registrar. All transcripts are subject to verification of authenticity.

International students must meet ALL of the requirements above and those required by International Admissions.

## Degree Requirements

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
GENC 6101	Psychosocial Aspects of Genetic Counseling I	2
GENC 6105	Basic Interviewing Skills	1
GENC 6110	Topics in Medical Genetics I	3
GENC 6120	Clinical Cytogenetics and Molecular Genetics	3
GENC 6121	Laboratory in Clinical Cytogenetics and Molecular Genetics	2
GENC 6170	Introduction to Clinical Research for Genetic Counseling Students	1
<b>Hours</b>		<b>12</b>
<b>Spring</b>		
GENC 6102	Psychosocial Aspects of Genetic Counseling II	2
GENC 6111	Topics in Medical Genetics II	2
GENC 6122	Seminar in Clinical Cytogenetics and Molecular Genetics	1
GENC 6130	Cancer Genetics and Genetic Counseling	2
GENC 6140 or GENC 6150	Human Inborn Errors of Metabolism or Congenital Malformations and Disorders of the Newborn	2
<b>Hours</b>		<b>9</b>
<b>Summer</b>		
GENC 6940	Capstone in Genetic Counseling	1-2
<b>Hours</b>		<b>1-2</b>
<b>Year 2</b>		
<b>Fall</b>		
GENC 6201	Advanced Psychosocial Genetic Counseling	2
GENC 6210	Professional Issues in Genetic Counseling I	2
GENC 6250	Risk Calculation in Genetic Counseling	1
GENC 6940	Capstone in Genetic Counseling	1-2
<b>Hours</b>		<b>6-7</b>
<b>Spring</b>		
GENC 6211	Professional Issues in Genetic Counseling II	2

GENC 6140 or GENC 6150	Human Inborn Errors of Metabolism or Congenital Malformations and Disorders of the Newborn	2
GENC 6940	Capstone in Genetic Counseling	1-2
<b>Hours</b>		<b>5-6</b>
<b>Total Hours</b>		<b>33-36</b>

Code	Title	Hours
<b>Required Clinicals</b>		
<i>(all students start Spring of year 1, continuing through Spring of year 2)</i>		
GENC 6910	Applied General Genetics Clinic	3
GENC 6911	Applied Prenatal Genetics Clinic	3
GENC 6912	Applied Metabolic Genetics Clinic	3
GENC 6913	Applied Regional & Specialties Genetics Clinics	1-2
GENC 6914	Applied Hereditary Cancer Clinic	1-3
GENC 6915	Applied Adult Medical Genetics Clinic	1

## Learning Objectives

The Genetic Counseling M.S. Program trains graduate students to become competent and effective health professionals. The Accreditation Council for Genetic Counseling (ACGC) accredits genetic counseling graduate programs in North America. ACGC defines the following Practice-Based Competencies (PBCs) that an entry level genetic counselor must demonstrate.

The PBCs are categorized into the following four domains: (1) Genetics Expertise and Analysis; (2) Interpersonal, Psychosocial and Counseling Skills; (3) Education; and (4) Professional Development and Practice. Some competencies may pertain to more than one domain. These domains represent practice areas that define activities of a genetic counselor. The examples below each competency illustrate more specific outcomes that would exemplify achievement of the competency.

Practice-Based Competencies for Genetic Counselors (ACGC, 2013)

### Domain I: Genetics Expertise and Analysis

1. Demonstrate and utilize a depth and breadth of understanding and knowledge of genetics and genomics core concepts and principles.
2. Integrate knowledge of psychosocial aspects of conditions with a genetic component to promote client well-being.
3. Construct relevant, targeted and comprehensive personal and family histories and pedigrees.
4. Identify, assess, facilitate, and integrate genetic testing options in genetic counseling practice.
5. Assess individuals' and their relatives' probability of conditions with a genetic component or carrier status based on their pedigree, test result(s), and other pertinent information.
6. Demonstrate the skills necessary to successfully manage a genetic counseling case.
7. Critically assess genetic/genomic, medical and social science literature and information.

### Domain II: Interpersonal, Psychosocial and Counseling Skills

1. Establish a mutually agreed upon genetic counseling agenda with the client.
2. Employ active listening and interviewing skills to identify, assess, and empathically respond to stated and emerging concerns.

3. Use a range of genetic counseling skills and models to facilitate informed decision-making and adaptation to genetic risks or conditions.
4. Promote client-centered, informed, non-coercive and value-based decisionmaking.
5. Understand how to adapt genetic counseling skills for varied service delivery models.
6. Apply genetic counseling skills in a culturally responsive and respectful manner to all clients.

### Domain III: Education

1. Effectively educate clients about a wide range of genetics and genomics information based on their needs, their characteristics and the circumstances of the encounter
2. Write concise and understandable clinical and scientific information for audiences of varying educational backgrounds.
3. Effectively give a presentation on genetics, genomics and genetic counseling issues.

### Domain IV: Professional Development & Practice

1. Act in accordance with the ethical, legal and philosophical principles and values of the genetic counseling profession and the policies of one's institution or organization.
2. Demonstrate understanding of the research process.
3. Advocate for individuals, families, communities and the genetic counseling profession.
4. Demonstrate a self-reflective, evidenced-based and current approach to genetic counseling practice.
5. Understand the methods, roles and responsibilities of the process of clinical supervision of trainees.
6. Establish and maintain professional interdisciplinary relationships in both team and one-on-one settings, and recognize one's role in the larger healthcare system.

## Courses

### GENC 6101 - Psychosocial Aspects of Genetic Counseling 1 (2 Credits)

This is the first course in a two-semester sequence addressing basic psychosocial and counseling theories, approaches, and resources necessary for the provision of genetic counseling to clients and their families in prenatal, pediatric and adult clinical settings. Coreq: GENC 6105, GENC 6110. Restrictions: Matriculated students in Genetic Counseling MS Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### GENC 6102 - Psychosocial Aspects of Genetic Counseling II (2 Credits)

This is the second course in a two-semester sequence addressing basic psychosocial and counseling theories, approaches, and resources necessary for the provision of genetic counseling to clients and their families in prenatal pediatric and adult clinical settings. Prereq: GENC 6101. Co-Req: GENC 6105, GENC 6110. Restrictions: matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.



**GENC 6105 - Basic Interviewing Skills (1 Credit)**

This course covers fundamental theories and principles of effective patient/client interviewing in genetic counseling practice. Lectures are combined with hands-on role plays and interviews so that students may gain applied experience and receive feedback to foster skills development throughout course. Coreq: GENC 6101, GENC 6110.

Restriction: Matriculated student in Genetic Counseling M.S. Program

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6110 - Topics in Medical Genetics I (3 Credits)**

First course in a two-part course sequence regarding principles of clinical genetics and genetic counseling and development of clinical skills used in various medical genetics settings. Fall semester focuses on principles important in pediatric and general genetics settings.

Restriction: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6111 - Topics in Medical Genetics II (2 Credits)**

Second course in two-course sequence regarding principles of clinical genetics and genetic counseling used in various medical genetics settings, and development of critical skills. Spring semester focuses on prenatal and adult genetics clinic settings. Prereq: GENC 6110.

Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6120 - Clinical Cytogenetics and Molecular Genetics (3 Credits)**

This course provides integrated instruction regarding human cytogenetic and molecular genetic principles, techniques, and diagnostic testing approaches used in clinical evaluation and risk assessment for genetic disorders/predispositions in prenatal and postnatal patient populations.

Coreq: GENC 6121. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6121 - Laboratory in Clinical Cytogenetics and Molecular Genetics (2 Credits)**

Course provides introduction to specific methodologies and interpretation of studies used in diagnostic cytogenetics and molecular genetics laboratories. Principles discussed in the co-requisite clinical cytogenetics and molecular genetics course will be applied through demonstrations, hands-on experiments, discussion of illustrative cases. Coreq: GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6122 - Seminar in Clinical Cytogenetics and Molecular Genetics (1 Credit)**

Course requires students to apply theories/principles of cytogenetics and molecular genetics to analysis of cases that present in daily operations of diagnostic laboratories and formal critique of current research literature. Additionally, students present formal seminar integrating cytogenetic/molecular genetic principles. Prereq: GENC 6120, GENC 6121. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6125 - Embryogenetics (1 Credit)**

Providing practical knowledge for genetic counseling this course on human embryology is focused on major developmental stages and organ systems with an emphasis on molecular genetic pathways and associated syndromes that arise due to their disruption. Requisite: Matriculated student in M.S. Genetic Counseling Program (GENC).

Grading Basis: Letter Grade

Typically Offered: Fall.

**GENC 6130 - Cancer Genetics and Genetic Counseling (2 Credits)**

Course in providing genetic counseling services to clients with or at risk for hereditary cancer predisposition. Topics include clinical oncology, epidemiology, molecular biology of cancer, risk assessment, genetic testing, ethical/legal issues, clinical research considerations, psychosocial impact/support, specific genetic counseling approaches.

Prereq: GENC 6110, GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6140 - Human Inborn Errors of Metabolism (2 Credits)**

Course provides systematic review of major metabolic disorders, including their clinical phenotypes, diagnosis, and management. Physiological and laboratory testing principles important to understanding these disorders will be reviewed. Psychosocial impact of metabolic disorders and genetic counseling approaches will be discussed. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6150 - Congenital Malformations and Disorders of the Newborn (1 Credit)**

This survey course covers common major malformations and non-metabolic genetic disorders identified by newborn screening programs. Clinical phenotypes, diagnosis, management and etiology are addressed. Psychosocial impact of these conditions and genetic counseling approaches will be discussed. Prereq: GENC 6110. Co-Req: GENC 6111.

Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6170 - Introduction to Clinical Research for Genetic Counseling Students (1 Credit)**

An introduction to clinical research including an overview of ethical principles, study methods and designs, practical execution, data analysis and presentation of results. Possible roles of a genetic counselor in the conduct of clinical research will be a course focus. Restrictions: Matriculated student in MS Genetic Counseling Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6201 - Advanced Psychosocial Genetic Counseling (2 Credits)**

This course examines advanced genetic counseling techniques as they relate to psychosocial theories, specific client characteristics and the client/counselor dynamic. Critical discussion of core topics and readings and case analysis will be used for instruction. Prereq: GENC 6101 and GENC 6102. Restrictions: Matriculated second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6210 - Professional Issues in Genetic Counseling I (2 Credits)**

First course in a two course sequence regarding professional practice issues of master's level genetic counselors. The Fall semester course focuses on professional standards, professional ethics, legal principles and health systems and policy issues relevant to genetic counselors. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6211 - Professional Issues in Genetic Counseling II (2 Credits)**

Second course in a two course sequence regarding professional practice issues of master's level genetic counselors. The Spring semester course focuses on disability issues, cultural competency, public health genetics, research methods in genetic counseling, and professional roles. Prereq: GENC 6210. Restrictions: Second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6250 - Risk Calculation in Genetic Counseling (1 Credit)**

This course covers pedigree analysis and risk calculation principles used by genetic counselors in clinical practice. Prereq: GENC 6110, GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6610 - Topic in Med Genetic 1 (3 Credits)**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6910 - Applied General Genetics Clinic (3 Credits)**

This is a clinical rotation for Genetic Counseling M.S. students through a general genetics clinic serving a variety of referral indications. Students will learn and practice case management, history taking, risk assessment, counseling and client advocacy skills. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6911 - Applied Prenatal Genetics Clinic (3 Credits)**

This is a clinical rotation for genetic counseling students through a prenatal diagnosis and genetics clinic. Students will learn/practice history taking, risk assessment, patient education and genetic counseling, case management, as well as observe prenatal diagnosis and Art procedures. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6912 - Applied Metabolic Genetics Clinic (3 Credits)**

This is a clinical rotation for genetic counseling students through a genetics clinic for inborn errors of metabolism. Students will work with patients referred for diagnostic evaluation, medical/nutritional management of specific conditions, and follow-up of positive newborn metabolic screening results. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6913 - Applied Regional & Specialties Genetics Clinics (1-2 Credits)**

This is a clinical rotation for genetic counseling students through regional outreach genetics clinics and specialty/multidisciplinary clinics serving patients with various genetic conditions. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6914 - Applied Hereditary Cancer Clinic (1-3 Credits)**

This is a clinical rotation for genetic counseling students through a hereditary cancer clinic for individuals seeking genetic counseling and testing for genetic cancer predisposition syndromes. Prereq: GENC 6110, PEDS 6601, PEDS 6602. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6915 - Applied Adult Medical Genetics Clinic (1 Credit)**

This is a clinical rotation for genetic counseling students through a medical genetics clinic and clinical research settings providing diagnosis, management, risk assessment and genetic counseling for adults. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6919 - Applied Medical Genetics Clinic - Clinical Elective (1-3 Credits)**

This is an elective clinical rotation for genetic counseling students desiring to arrange training in outside of core required clinical rotations or an additional, advanced rotation. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6920 - Applied Medical Genetics-Laboratory Genetic Counseling Elective (1 Credit)**

An elective rotation for students desiring an advanced, applied training experience with genetic counselors based in a genetics diagnostic laboratory. Restrictions: Matriculated student in GENC program who has completed required prerequisite courses listed; Permission of instructor. Prereq: GENC 6120; GENC 6121; GENC 6122

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6940 - Capstone in Genetic Counseling (1-2 Credits)**

Students will develop a proposal and complete an individualized scholarly project that contributes to the knowledge and/or practice of genetic counseling. GENC matriculated student with 2 semesters required coursework completed. Permission of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6950 - Master's Thesis (1-6 Credits)**

Masters thesis research to be arranged with prior approval of the Graduate Program in Genetic Counseling. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

The M.S. Genetic Counseling Program is participating in the Genetic Counseling Admissions Match through National Matching Services (NMS). All student positions will be filled via the Match. The GC Admissions Match has been established to enhance the process of placing applicants into positions in masters-level genetic counseling programs that are accredited by the Accreditation Council for Genetic Counseling (ACGC). The Match uses a process that takes into account both applicants' and programs' preferences. All applicants must first register for the Match with NMS before applying to participating genetic counseling graduate programs. At the conclusion of all program

interviews, both applicants and programs will submit ranked lists of preferred placements to NMS according to deadlines posted on the NMS website. The binding results of the Match will be released to both applicants and programs simultaneously.

For additional policy information, please refer to the Graduate School Policies page (p. 166).

## Contact Us

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Program Administrator

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Genetic Counseling Program website: [cuanschutz.edu/graduate-programs/genetic-counseling/home](https://www.cuanschutz.edu/graduate-programs/genetic-counseling/home) (<https://www.cuanschutz.edu/graduate-programs/genetic-counseling/home/>)

## Health Services Research, Policy, & Administration (MS)

### Overview

This program emphasizes the multidisciplinary scientific foundations of healthcare research. As a student in this program, you'll study how the interplay of social factors, health technologies, and personal behaviors impact healthcare access, healthcare cost and quality, and quality of life. You'll be trained to think like a scientist, implementing and developing of research studies that assess predictors of disease and the effectiveness of interventions.

To learn more about the **Master of Science in Health Services Research, Policy, & Administration**, please click here (p. 133) to view the information within the Colorado School of Public Health portion of the academic catalog.

## Modern Human Anatomy (MS)

### Overview

The Master of Science Program in Modern Human Anatomy (MHA) provides graduate level training and teaching experience in the physical and virtual anatomical sciences. The curriculum integrates 3D computer imaging and modeling with human cadaver dissection, neuroanatomy, histology, and embryology.

The Master of Science in Modern Human Anatomy (MHA) Program is innovative and unique, bridging an established anatomy/developmental biology curriculum with the foundations of digital imaging technologies now in use in medical care, biomedical research, medical illustration, and teaching. This program blends modern and classical approaches to anatomical study, with a goal of producing a new generation of anatomical professionals prepared for diverse careers. The program emphasizes an individualized, flexible approach to professional growth and career development through a student-designed capstone project.

This two-year program will prepare graduates to work in a broad spectrum of educational and biomedical sub-specialties where creativity and innovation abound, and knowledge of human anatomy is highly valued.

## Anatomical Imaging & Modeling track

The latest advancements in medical imaging technology have accelerated the acquisition of high-resolution, 3D anatomical data. Tools such as 3D printers, surface scanners, and virtual/augmented reality headsets have propelled the creation and use of 3D graphics in the research and education of the anatomical sciences. These developments have created a demand for individuals with strong spatial skills, proficient in both human anatomy and in 3D technology. The Anatomical Imaging and Modeling (AIM) track aims to weave traditional teachings in anatomical sciences with cutting-edge, 3D technology through AIM specific coursework, mentorship, project-based learning, and teaching opportunities.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Statement of Purpose: describe plans for graduate study, potential career choices, how the MHA will help reach goals, and comfort with technology.
  - Resume or CV
  - Past Work: describe aspects of background that will lead to success in this rigorous graduate program, describe past academic and non-academic educational experiences.
  - Three letters of recommendation
  - Test scores (recommended, not required): GRE, MCAT, and DAT accepted
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars) for domestic applicants and \$75.00 (U.S. dollars) for international applicants. Checks or money orders should be made out to the University of Colorado.
- Interview: After the application is complete, qualifying applicants are invited to participate in one of the MHA interview days. The applicant may choose an in-person or video interview, which will be arranged with the applicant and one faculty member plus a current 2<sup>nd</sup> year MHA student. The in-person interview days provide applicants with opportunities to learn more about the MHA program, speak directly with current students and faculty, meet other applicants, and participate in a Curriculum Overview and student-run Q&A session.  
To be considered for admission, applicants must participate in the interview process.
- Transcripts: One official transcript from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Degree Requirements

Please note: Year 1 Summer, Year 2 Fall, and Year 2 Spring are flexible, and courses can be taken in many orders and combinations.

## First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
ANAT 6205	Imaging and Modeling	4
ANAT 6310	Neuroanatomy	4
ANAT 6330	Human Embryology	3
ANAT 6412	Foundations of Teaching	1
<b>Hours</b>		<b>12</b>
<b>Spring</b>		
ANAT 6111	Human Gross Anatomy	8
ANAT 6321	Human Histology	4
<b>Hours</b>		<b>12</b>
<b>Summer</b>		
ANAT 6950	MSMHA Capstone Project	1-12
<b>Hours</b>		<b>1-12</b>
<b>Total Hours</b>		<b>25-36</b>

## Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
ANAT 6600	Experimental Design and Research Methods	1
ANAT 6910	Teaching Practicum	1-4
Elective (3 Credits)		
ANAT 6950	MSMHA Capstone Project	1-12
<b>Hours</b>		<b>3-17</b>
<b>Spring</b>		
Elective		3
Elective		3
ANAT 6950	MSMHA Capstone Project	1-12
<b>Hours</b>		<b>7-18</b>
<b>Total Hours</b>		<b>10-35</b>

## Anatomical Imaging & Modeling Required Courses

Code	Title	Hours
ANAT 6208	Foundations in 3D Modeling for Anatomical Sciences	1
ANAT 6210	Autodesk Maya for Anatomical Science	2
ANAT 6220	Unreal Engine for the Anatomical Sciences	2
<i>Electives</i>		<i>4</i>

## Learning Objectives

The Master of Science in Modern Human Anatomy program trains graduate students to be capable and skilled scholars who are successfully able to:

### 1) Demonstrate a broad knowledge of human anatomy

- Develop an in-depth and thorough understanding of human anatomy at the macroscopic level, including systems-based and regional anatomy.

- Develop an understanding of neural systems organization, cellular neurobiology, and topographic and vascular anatomy of the spinal cord, brain, and cerebrum.
- Develop a microscopic-level comprehension of human tissue, including the structure, function, and organization of cells and tissues.
- Evaluate and assess the developmental process of human embryonic and fetal periods, analyze congenital abnormalities, and integrate embryology to adult human gross anatomy.

## 2) Understand and apply multiple imaging and modeling modalities

- Synthesize image characteristics, informatics, acquisition, processing, and analysis with an emphasis on 3D and dynamic data.
- Create and implement 3D anatomical models.

## 3) Teach anatomical sciences at a professional level

- Develop content-based instructional and pedagogical skills, understand frameworks for making curricular decisions, implement active learning techniques and investigate the impact of teaching for diversity in health science programs.
- Apply pedagogical theories to practice in a professional program.

## 4) Complete a novel work or project that contributes to field of anatomical sciences

- Select a project or pursue an area of research that includes the investigation of one or more sub-disciplines in anatomical sciences, including areas such as: anatomical education, educational technology, clinical applications, and imaging and modeling.
- Demonstrate scientific literacy by critically evaluating your work in the context of published literature.
- Develop aims and establish a methodology for achieving the desired outcomes.
- Present the project publicly.
- Submit a final paper, outlining the project aims, methodology, and outcomes.

## 5) Develop an emphasis area within anatomy, anatomy education, and/or imaging and modeling

# Courses

### ANAT 6111 - Human Gross Anatomy (8 Credits)

The Human Gross Anatomy course examines the form and function of the human body at a macroscopic level. Systems-based and regional anatomy lectures are complemented by full-body cadaver dissection. Medical imaging labs provide the opportunity to learn ultrasound skills. Requirements: Must be a degree-seeking student in MS Modern Human Anatomy program.

Grading Basis: Letter Grade

Typically Offered: Spring.

### ANAT 6205 - Imaging and Modeling (4 Credits)

This course covers major medical and scientific imaging modalities with an emphasis on 3D scientific and medical visualization. Students will also receive instruction in advanced digital image processing and 3D modeling using industry-standard software such as MATLAB and Maya. Prerequisite: Only ANAT degree-seeking students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### ANAT 6208 - Foundations in 3D Modeling for Anatomical Sciences (1 Credit)

An introduction to the applications and techniques necessary for 3D scanning, modeling, and printing. This lab-based course will provide students with hands-on experience on acquiring and processing surface scan data along with strategies for printing and finishing objects using fused-deposition modeling and stereo lithography. Pre-requisite: ANAT 6205

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### ANAT 6210 - Autodesk Maya for Anatomical Science (2 Credits)

Autodesk Maya for Anatomical Sciences teaches students to create professional animations illustrating concepts inherent in the study of medical science using Autodesk Maya. Pre-requisite: ANAT 6208.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

### ANAT 6220 - Unreal Engine for the Anatomical Sciences (2 Credits)

This course builds upon the foundational 3D modeling skills learned in ANAT 6260 and provides students with the practical experience, inspiration, and confidence to incorporate the Unreal Engine into their capstone. Students will deploy an app built with Unreal Engine. Pre-requisite: ANAT 6208 Prerequisite; ANAT-MS student or instructor permission.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### ANAT 6310 - Neuroanatomy (4 Credits)

Structure & Function in the Human Nervous System. Basic neuroanatomy & neural systems with workshop focus employing facilitated discussions & problem-oriented cases. Laboratory sessions will employ brain specimens, models & image sets. Team-based projects are in-depth exploration of topics with development of collaborative presentations. Requisite: Restricted to ANAT students only.

Grading Basis: Letter Grade

Typically Offered: Fall.

### ANAT 6321 - Human Histology (4 Credits)

Histology is the study of the tissues. By exploring the human structure, function and organization at the histological level, students will gain important pattern recognition skills to integrate microscopic knowledge with macroscopic gross anatomy and other foundational anatomical sciences. (Will replace ANAT 6320) Prereq: Restricted to ANAT students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### ANAT 6330 - Human Embryology (3 Credits)

This graduate level, introductory human embryology course will emphasize developmental aspects of adult anatomy and congenital malformations. Educational value of three-or-four-dimensional models and other ancillary learning resources for human embryology will also be explored. Requisite: Restricted to ANAT students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.



**ANAT 6412 - Foundations of Teaching (1 Credit)**

This course will provide students with training, practice, and constructive feedback in effective teaching skills in order to be successful in the biomedical professions. Topics include learning objectives, the neurobiology of learning, assessments, and effective communication within and outside the classroom.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6490 - Advanced Teaching in Anatomical Sciences (3 Credits)**

This course offers a hands-on, supervised experience as an anatomical sciences educator. Readings and discussions will enhance your understanding of educational pedagogy. You will apply these skills as you develop and deliver lecture and lab content in a classroom setting. Instructor consent required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**ANAT 6600 - Experimental Design and Research Methods (1 Credit)**

In this course, students will foster and apply strategies that enable critical evaluation of any published research (including basic, clinical, and educational), as well as develop the skills necessary to conduct and appropriately analyze their own research data.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6750 - Special Topics: Modern Human Anatomy (1-6 Credits)**

This course is offered in a variety of technical and thematic areas in modern human anatomy. The specific topics vary from year to year. Note: This course includes lectures, discussions and workshops.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6840 - Independent Study (1-6 Credits)**

This course enables the student to pursue an investigation in a modern human anatomical field of choice toward completion of a capstone project with relatively minor supervision from faculty advisors.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6910 - Teaching Practicum (1-4 Credits)**

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Prereq.: ANAT 6412. Course restricted to ANAT majors.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6911 - Advanced Teaching Practicum (1-4 Credits)**

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Pre-requisite: ANAT degree-seeking student; ANAT 6412

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6931 - MSMHA Internship (1-6 Credits)**

The internship provides hands-on learning opportunities and practical experience for graduate students in institutions related to anatomical sciences, imaging, technology/biotechnology, innovation, and entrepreneurship. Restricted to ANAT students only

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**ANAT 6950 - MSMHA Capstone Project (1-12 Credits)**

The Capstone project is a scholarly and/or research-based pursuit of knowledge and content development in the area of anatomical sciences, modern imaging and modeling technologies, and educational science completed as part of the MS in Modern Human Anatomy. Prerequisite: Must be ANAT degree-seeking student.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

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## Palliative Care (MS)

### Overview

The Master of Science Degree in Palliative Care along with the Interprofessional Graduate Certificate in Palliative Care aim to ease suffering worldwide for those patients and families living with serious illness through exemplary palliative care education.

These programs develop Palliative Care Community Specialists through innovative educational pedagogies designed to facilitate learning for healthcare providers and allied health professionals in up-to-date,

evidence-based, interdisciplinary palliative care concepts using an online virtual learning environment that offers flexible application-based approaches.

Program courses are delivered in an interprofessional learning environment that mirrors the palliative care work setting. The program focuses on advancing clinical knowledge; developing clinical wisdom; building an evidence-based palliative care practice; enhancing communication skills; and addressing physical, psychological, social, and spiritual suffering.

## Admission Requirements

**DOMESTIC APPLICATION DEADLINE: May 1**

**INTERNATIONAL APPLICATION DEADLINE: April 15**

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement: A one-page personal statement describing the applicant's career goals and purpose for studying palliative care.
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Educational Goals statement.
  - Two recommendations: to be completed by people who know your professional, academic and/or personal achievements or qualities well. As such, references must be from professional contacts, such as employers, supervisors, former faculty, preceptors, or professional colleagues. References from clergy, family members, friends or politicians will not be accepted.
- Licenses and Certificates: A notarized copy of the applicant's current professional license and a copy of the photo identification used in the license notary process or online verification of the applicant's current professional license. (Biomedical learners only)
- Driver's License: A copy of the applicant's driver's license or state-issued ID.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars). Checks or money orders should be made out to the University of Colorado.
- Interview: After the application is complete a telephone or video interview will be arranged with the applicant and two faculty members. This interview will afford the program the opportunity to understand the needs of the applicant and for the candidate to ask questions. The interview process is designed to assess the applicant's knowledge of the profession, communication, and ability to perform in a positive, professional manner when working with others. To be considered for admission, applicants must participate in the interview process.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions.

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year Fall</b>		
PALC 6510	Core Concepts, Principles & Communication Skills	3
PALC 6110 or PALC 6111	Basic Pain Assessment & Management: IDT Care or Basic Pain Assessment & Management: IDT Care (AHP)	3
<b>Hours</b>		<b>6</b>

### Spring

PALC 6210 or PALC 6211	IDT Care for Symptoms: Part A or IDT Care for Non-pain Symptoms: Part A (AHP)	3
PALC 6220 or PALC 6221	IDT Care for Symptoms: Part B or IDT Care for Non-Pain Symptoms: Part B (AHP)	3
<b>Hours</b>		<b>6</b>

### Summer

PALC 6520	Communication Skill Refinement: IDT Collaboration	3
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>15</b>

### Second Year

Course	Title	Hours
<b>Second Year Fall</b>		
PALC 6310	Advanced Illness in Special Settings: Part A	3
PALC 6320	Advanced Illness in Special Settings: Part B	3
<b>Hours</b>		<b>6</b>

### Spring

PALC 6330	Advanced Illness in Special Settings: Part C	3
PALC 6120 or PALC 6121	Advanced Concepts in Pain Management or Advanced Concepts in Pain Management (AHP)	3
<b>Hours</b>		<b>6</b>

### Summer

PALC 6950	Capstone Project	1-3
<b>Hours</b>		<b>1-3</b>
<b>Total Hours</b>		<b>13-15</b>

## Learning Objectives

### Communication Skills

The PC Community Specialist demonstrates expertise in relationship centered communication theory and skills to gather and share information, negotiate shared decision making and plans of care, and sustain relationships with palliative care patients/families and healthcare providers.

**Expert Symptom Management Skills**

The PC Community Specialist demonstrates expert clinical judgment in performing a comprehensive patient assessment, leading to diagnosis development, implementation, and ongoing reassessment with modification of effective, evidence-based care plans utilizing the skills and expertise of the interdisciplinary team (IDT), for all distressing symptoms experienced by patients with any serious illness.

**Ethics, Advocacy, and Legal Aspects of Care**

The PC Community Specialist incorporates knowledge of ethical and legal aspects of palliative care into practice by exhibiting the highest professional standards and by advocating for the rights of patients/families to access optimal palliative care.

**Spiritual, Religious and Existential Aspects of Care**

As part of the IDT, the PC Community Specialist demonstrates and promotes spiritually sensitive care, respecting diversity in all forms, for patients/families and other health care professionals.

**Social and Cultural Aspects of Care**

As part of the IDT, the PC Community Specialist demonstrates respect for diverse communities through culturally sensitive skills, recognizing how social and economic barriers and challenges impact the delivery of health care services.

**Psychological Aspects of Care**

As part of the IDT, the PC Community Specialist effectively addresses psychological concerns, and promotes access to expanded resources for all patients/families living with any serious illness.

**Integration of Palliative Care for patients throughout the course of any serious illness in all venues**

The PC Community Specialist effectively advocates to provide evidence-based palliative care for patients/families and supports and develops expanded resources for all patients/families living with any serious illness.

**Effective Palliative Care Educator**

The PC Community Specialist demonstrates knowledge, skills, and applies adult learning principles when providing palliative care education to patients, families, healthcare professionals, and the community.

**Systems Thinking**

The PC Community Specialist demonstrates understanding of the healthcare system to effectively manage and utilize resources to support patients/families living with any serious illness and advocates for the reform of healthcare systems to provide optimal palliative care.

**PALC 6110 - Basic Pain Assessment & Management: IDT Care (3 Credits)**

This course reviews basic pain pathophysiology, assessment, non#pharmacological interventions, and non#opioid and opioid pharmacological pain management. Integrated with IDT topics related to pain such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6111 - Basic Pain Assessment & Management: IDT Care (AHP) (3 Credits)**

Offered jointly with PALC 6110; reviews basic pain pathophysiology, assessment, non#pharmacological interventions, and non#opioid & opioid pharmacological pain management. Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6120 - Advanced Concepts in Pain Management (3 Credits)**

This course focuses on methadone, opioid infusions, interventional pain management, and other complex modalities. This class focuses on ethics and psychosocial issues including pain in the face of addiction and public policy around opioids and REMS. Prerequisites: PALC 6110 and 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6121 - Advanced Concepts in Pain Management (AHP) (3 Credits)**

Offered jointly with PALC 6120; Focuses on safe use of methadone, opioid infusions, interventional pain management, and other complex modalities. This class also covers ethics and psycho-social-spiritual issues related to pain, addiction, and public policy around opioids and REMS. Some thanatology content is tailored for AHP students. Requisite: PALC 6111, 6511, and 6512

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6210 - IDT Care for Symptoms: Part A (3 Credits)**

Course covers the assessment and management of eight common non#pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6211 - IDT Care for Non-pain Symptoms: Part A (AHP) (3 Credits)**

Offered jointly with PALC 6210; assessment/management of eight common non#pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics such as psychological, social & spiritual distress, and ethical standards related to practice. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6220 - IDT Care for Symptoms: Part B (3 Credits)**

This course covers the assessment and management of eight different common non#pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6221 - IDT Care for Non-Pain Symptoms: Part B (AHP) (3 Credits)  
Offered jointly with PALC 6220; covers assessment & management of eight common non-pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6310 - Advanced Illness in Special Settings: Part A (3 Credits)  
Assessment/management of 8 chronic illnesses (cardiopulmonary, end stage liver and renal diseases) emphasis on early PC combined with disease focused therapy. Attention: prognostication and transitions into palliative/hospice care or discontinuing treatments including bioethical review and IDT support. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6320 - Advanced Illness in Special Settings: Part B (3 Credits)  
Assessment/management of cancer and HIV as chronic illness with emphasis on early palliative care combined with disease focused therapy. Attention to prognostication, transition into palliative/hospice care. Paired with Spiritual Care review of challenging spiritual issues, hope, miracles and rituals. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6330 - Advanced Illness in Special Settings: Part C (3 Credits)  
Assessment/management of neurodegenerative disorders as chronic illness with emphasis on early palliative care combined with disease focused therapy. Attention to prognostication and transitions into palliative/hospice care. Paired with bioethical review and comfort care for the imminently dying. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6410 - Death & Dying: Unique Role of the AHP (3 Credits)  
This course focuses on methadone, opioid infusions, interventional pain management, and other complex modalities. This class focuses on ethics and psychosocial issues including pain in the face of addiction and public policy around opioids and REMS. For AHP students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6510 - Core Concepts, Principles & Communication Skills (3 Credits)

Online and on-campus intensive (some physical presence required) on palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Requirement: Restricted to PALC MS or certificate students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6511 - Online: Core Concepts, Principles & Commun. Skills (2 Credits)

Online discussion of palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Co-Requisite: PALC 6512

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6512 - Intensive: Core Topics, Principles & Commun. Skills (1 Credit)

On-campus, in-person intensive (physical presence required) discussion of palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Co-Requisite: PALC 6511

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6520 - Communication Skill Refinement: IDT Collaboration (3 Credits)

Online and on-campus intensive (some physical presence required). Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho#social#spiritual assessment integrated in treatment plans with simulated patients/families.

Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6521 - Online: Comm. Skill Refinement: IDT Collaboration (2 Credits)

Online. Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho#social#spiritual assessment integrated in treatment plans with simulated patients/families. Co-Requisite: PALC 6522

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6522 - Intensive: Comm. Skill Refinement: IDT Collaboration (1 Credit)

On-campus, in-person intensive (physical presence required). Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho#social#spiritual assessment integrated in treatment plans with simulated patients/families. Co-Requisite: PALC 6521

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6530 - Palliative Care Integrated in Your Community (3 Credits)

Online and on-campus intensive (some physical presence required). Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Prerequisites: PALC 6510, PALC 6520, and PALC 6950 or PALC 6960

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6531 - Online: Palliative Care Integrated in Your Community (2 Credits)**

Online. Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Co-Requisite: PALC 6532

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6532 - Intensive: Pall Care Integrated in Your Community (1 Credit)**

On-campus, in-person intensive (physical presence required).

Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Co-Requisite: PALC 6531

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6910 - Systems Topics: Preparation to Capstone (3 Credits)**

Palliative Care Research, Quality Improvement, Health Care Policy and Advocacy and Palliative Care Program development including institutional needs assessment and program planning. Instruction to become a PC Educator, development of professional resilience and role of medical humanities. Prerequisite: PALC 6511/PALC 6512

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6950 - Capstone Project (1-3 Credits)**

MS Palliative Care Capstone Project. Students will design, implement, evaluate, and present the result of a research, QI, education, advocacy, or medical humanities project during year 2 with mentorship from faculty. Results presented at final on-campus course (PALC 6530). Prerequisites: PALC 6910 and PALC 6520

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PALC 6960 - Masters Thesis in Palliative Care (1-3 Credits)**

Masters thesis work in Palliative Care. Final results presented at final on-campus course (PALC 6530). Prerequisite: PALC 6910 and 6520

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PALC 7001 - Comm-Based Hospice and Pall Med Fellowship - A (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**PALC 7002 - Comm-Based Hospice and Pall Med Fellowship - B (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**PALC 7003 - Comm-Based Hospice and Pall Med Fellowship - C (4 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**PALC 7004 - Comm-Based Hospice and Pall Med Fellowship - D (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**PALC 7005 - Comm-Based Hospice and Pall Med Fellowship - E (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**PALC 7006 - Comm-Based Hospice and Pall Med Fellowship - F (4 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

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## Pharmaceutical Sciences (MS)

### Overview

The multidisciplinary field of pharmaceutical sciences has seen rapid advances that are critical to the discovery and development of drugs for chronic diseases such as cancer and diabetes, and emerging threats such as new pathogens and drug resistance. By training with our experts, you'll be on the best track to keep up with the constantly evolving field.

To learn more about the **Master of Science in Pharmaceutical Sciences**, please click here (p. 442) to view the information within the Skaggs School of Pharmacy and Pharmaceutical Sciences portion of the academic catalog.

## Graduate School PhD Programs

### Overview

As the highest academic credential, the PhD consists of rigorous, in-depth training and novel, independent scholarship. Students may enter many PhD programs with only a Bachelor's degree, though some require a Master's degree. Other common requirements include extensive undergraduate or postbaccalaureate research experience. PhDs are typically full-time endeavors and some may include funding to support living expenses.

Detailed descriptions of each program and their admissions requirements can be found on the PhD Program's page.

- Biomedical Sciences (p. 212)
- Biostatistics (PhD) (p. 212)
- Cancer Biology (PhD) (p. 212)
- Cell Biology, Stem Cells & Development (p. 212)
- Clinical Science (PhD) (p. 212)
- Computational Bioscience (PhD) (p. 216)
- Epidemiology (PhD) (p. 217)
- Health Services Research (PhD) (p. 217)
- Human Medical Genetics & Genomics (PhD) (p. 217)
- Immunology (PhD) (p. 217)
- Integrated Physiology (PhD) (p. 217)
- Medical Scientist Training Program (MD/PhD) (p. 217)
- Microbiology (PhD) (p. 217)
- Molecular Biology (PhD) (p. 217)
- Neuroscience (PhD) (p. 218)
- Nursing (PhD) (p. 218)
- Pharmaceutical Outcomes Research (PhD) (p. 218)
- Pharmaceutical Sciences (PhD) (p. 218)
- Pharmacology (PhD) (p. 218)
- Rehabilitation Science (PhD) (p. 218)

- Structural Biology & Biochemistry (PhD) (p. 218)
- Toxicology (PhD) (p. 218)

## Biomedical Sciences

BSP is the premier umbrella admissions program for the CU Anschutz campus. Because the program is interdisciplinary, BSP students have the flexibility to choose one of 11 courses of study.

To learn more about the **Biomedical Sciences PhD** umbrella program, please click here (p. 311) to view the information within the School of Medicine portion of the academic catalog.

## Biostatistics (PhD)

This program will prepare you for advanced study and research in biostatistics. It's a great fit for students with a strong background in mathematics and statistics who are interested in working in health care and biological settings. As a student in this program, you'll function as an independent investigator or co-investigator with researchers in other areas, taking the lead in designing studies and analyses.

To learn more about the **PhD in Biostatistics**, please click here (p. 129) to view the information within the Colorado School of Public Health portion of the catalog.

## Cancer Biology (PhD)

The Cancer Biology Training Program at the University of Colorado Denver | Anschutz Medical Campus is an interdepartmental program leading to the PhD in Cancer Biology. The Cancer Biology Program combines training in the basic biomedical sciences with opportunities to apply clinical and translational research to studies on human cancer.

To learn more about the **PhD in Cancer Biology**, please click here (p. 312) to view the information within the School of Medicine portion of the academic catalog.

## Cell Biology, Stem Cells & Development

In the Cell Biology, Stem Cells and Development (CSD) PhD program, our students utilize hypothesis-driven experimental approaches and cutting edge technologies to pursue important questions from basic mechanisms in developmental and cell biology to translational applications of stem cell biology.

To learn more about the **PhD in Cell Biology, Stem Cells & Development**, please click here (p. 315) to view the information within the School of Medicine portion of the academic catalog.

## Clinical Science (PhD)

### Overview

The Clinical Science PhD program is designed for qualified individuals who have already earned a health care graduate or professional degree (i.e., physicians, MSPH graduates, biostatisticians, epidemiologists, nurses, pharmacists, and dentists) or a graduate degree related to health sciences.

The overall goal of CLSC doctoral training program is to prepare nationally competitive clinician/clinical scientists who are able to

translate across the discovery-community continuum. Students in our program are highly motivated and bright individuals who seek additional rigorous training to become leaders in their field and make significant contributions to improving the health of citizens.

## Admission Requirements

All completed application materials for the PhD Program must be submitted by February 1st of each year to be considered for admission. There is only one application submission and review process per year. CLSC accepted applicants may start in the summer or fall term. Specific course offerings can be previewed at our Course Books and Schedules section of this page under Resources.

### Clinical Science PhD Program (CI & HIT tracks)

Qualified clinicians who have already earned either a professional doctoral degree (e.g., MD, DO, DPT, DDS, PharmD) or a health-related master's degree (nursing, public health, epidemiology, psychology, biostatistics, etc.) are eligible to apply to the CLSC PhD Program.

### Minimum Criteria for Admission

Meeting the minimum criteria does not guarantee admission.

- An undergraduate GPA of at least 3.0 (on a 4.0 scale)
- An acceptable and verifiable GRE, MCAT or PCAT score or earned MS/ MPH or PhD from an accredited US School
- Health related master's or professional doctoral degree. Individuals without a health related degree but with an exceptional background and relevant experience in the health care research field are encouraged to contact one of the Executive Leadership team members to discuss their interest further.
- Your submitted CV should document your previous research experience.
- In your personal statement portion of the application, you should identify the focus for your dissertation and your research mentor. Your identified research mentor should be one of your letters of support.

You are encouraged to speak with CLSC staff and/or faculty before applying to the program.

Please note that the Clinical Science Program does not provide stipends to assist with tuition and/or room and board expenses. In addition, we currently do not have any research or teaching assistantships to support the educational costs of international students.

### International Applicant Additional Admission Criteria

In addition to the general admission requirements listed above, international applicants must meet additional requirements dictated by the University.

Please note that the Clinical Science Program does not provide stipends to assist with tuition and/or room and board expenses. In addition we currently do not have any research or teaching assistantships to support the educational costs of international students.

### The application package must include the following:

- For **Upload A** please provide your CV listing Education and training, awards, publications, presentations, grants and research experience and other scholarly activity.
- Additional Non-academic and professional experiences can be detailed in **Upload B** of the electronic application.
- Identify your selected track of study, a proposed research project for your thesis, and your research mentor. In addition, include a

description of how this program will enhance your career. (Provided in **Upload C** of the electronic application)

- **Three recommendation letters** (Once you submit your application online, your references will receive an e-mail explaining how to upload their letters to the on-line application system)
- **Transcripts** from **all** higher education institutions. Students are not permitted to personally issue, send or deliver transcripts to program staff: All transcripts must be officially issued/sealed by and sent from the originating college/university institution. Therefore, when requesting an official transcript from your school, **please instruct the school to send your transcript directly from their office to:**
  - Clinical Science Program  
ATTN: Amanda Whiting  
University of Colorado Denver  
12401 East 17th Avenue, Campus Box B141  
Leprino Bldg, Rm 351  
Aurora, CO 80045
  - Official electronic transcripts are encouraged and should be amanda.g.whiting@cuanschutz.edu

## Degree Requirements

### Clinical Investigation Track

Code	Title	Hours
BIOS 6601	Applied Biostatistics I	3
BIOS 6602	Applied Biostatistics II	3
CLSC 7150	Ethics and Responsible Conduct of Research	1
EPID 6630	Epidemiology	3
CLSC 6270	Critical Appraisal Seminars in Clinical Science	1
CLSC 7202	Clinical Outcomes and Applications	3
CLSC 7300	Scientific Grant Review Process: CCTSI Proposals	1
<i>Choose 1 from the following:</i>		
BIOS 6648	Design and Conduct of Clinical Research	
EPID 6626	Research Methods in Epidemiology	
BIOS 6623	Advanced Data Analysis	
EPID 6631	Analytical Epidemiology	3
CLSC 6210	Research Seminars in Clinical Science	1
CLSC 7101	Grant Writing I	1
CLSC 8990	Doctoral Thesis	1-10

- 23 Required Clinical Investigation Course Credits
- 7 Elective Course Credits
- **Total required course hours for degree: 30**

### Health Information Technology Track

Code	Title	Hours
BIOS 6601	Applied Biostatistics I	3
BIOS 6602	Applied Biostatistics II	3
CLSC 7150	Ethics and Responsible Conduct of Research	1
EPID 6630	Epidemiology	3
CLSC 6270	Critical Appraisal Seminars in Clinical Science	1
CLSC 7202	Clinical Outcomes and Applications	3
HLTH 6071	Introduction To Health Information Technology	3
HLTH 6072	Management of Healthcare Information Technology	3
or NURS 6289	Information Systems Life Cycle	

NURS 6293	Database Mgmt Systems	3
or ISMG 6080	Database Management Systems	
<i>Choose 1 from the following:</i>		
BIOS 6648	Design and Conduct of Clinical Research	
EPID 6626	Research Methods in Epidemiology	
BIOS 6623	Advanced Data Analysis	
EPID 6631	Analytical Epidemiology	
CLSC 6800	Introduction to Health Information Technology	
CLSC 6210	Research Seminars in Clinical Science	1
CLSC 7101	Grant Writing I	1
CLSC 8990	Doctoral Thesis	1-10

- 28-29 required Health Information Technology course credits
- 1-2 elective course credits
- **Total required course hours for degree: 30**

## Learning Objectives

Clinical investigation is the discipline by which physicians, clinicians and other health related disciplines translate knowledge gained in the basic sciences or the laboratory setting to develop interventions and strategies to improve health outcomes. It can also involve translating knowledge gained about the efficacy of successful strategies conducted in the academic clinical setting to the community setting to improve health related outcomes.

The mission of the Clinical Investigation Track is to train the next generation of clinician scientists who will pursue careers in clinical translational research. Clinical investigation is clearly a primary mission of academic medical and health centers, and properly trained clinicians and scientists are uniquely qualified to engage in investigative and translational studies. Training occurs across many disciplines:

- Clinical trial design
- Biopharmaceutics and pharmacokinetics
- Biodiagnostics
- Laboratory-based molecular biology techniques that assist in bridging basic and clinical sciences

### Core Competencies

- Apply relevant study design methods commonly used in clinical translational investigative studies
- Interpret results from common molecular and cellular biology laboratory experiments
- Develop a well-designed research thesis project relevant to the clinical and translational sciences

HIT: Provides a background in clinical informatics: the study of how medical data and knowledge can be stored, analyzed, and delivered to facilitate research and to improve the quality, safety, and efficiency of care. Students will develop a fundamental understanding of the technical and organizational challenges particular to the field of health information technology and will train in evaluation and research methods. Graduates will be prepared for leadership roles in developing, implementing, and evaluating clinical informatics applications in academia, industry and clinical practice. Training occurs in the following disciplines:

- Electronic health records
- Decision support
- Telehealth

- Public health informatics
- Research informatics
- Standards and data integrity
- Privacy and security

### Core Competencies

- Demonstrate understanding of relevant standards and terminologies for communication and representation of health data
- Demonstrate understanding of major types of clinical and administrative information systems and how they are integrated
- Demonstrate understanding of computerized provider order entry (CPOE) and clinical decision support systems (CDSS), including
  - Success factors for implementation
  - Methods of encoding rules/logic
- Ability to assess and develop methods to protect privacy (e.g. HIPAA issues) and security (confidentiality, integrity, and availability) of health information
- Design appropriate research and evaluation studies in HIT, with understanding of both experimental and quasi-experimental research designs
- Ability to apply systems life cycle approach to HIT planning, analysis, design, implementation and evaluation, including translation of user needs into functional requirement
- Apply database concepts to the design and implementation of databases for clinical, research, and public health applications

## Courses

### BIOS 6601 - Applied Biostatistics I (3 Credits)

Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring, Summer.

### BIOS 6602 - Applied Biostatistics II (3 Credits)

A continuation of BIOS 6601 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively. Multiple optional lab sessions offered. Prerequisite: BIOS 6601

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

### BIOS 6623 - Advanced Data Analysis (3 Credits)

This course teaches the students how to be effective collaborators. Students will learn to modify project hypotheses to be statistical hypotheses. The students will identify and perform the appropriate data analyses and communicate their analyses both verbally and in writing. prerequisite: BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612 or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**BIOS 6648 - Design and Conduct of Clinical Research (3 Credits)**

Design and conduct of clinical research studies. Intended for non-biostatistics students. Topics include: specifying the research question, study endpoints, study populations, study interventions, sample size evaluation, and choice of comparison groups. Common study designs and methods for study conduct are described. Prerequisite: BIOS 6601 or BIOS 6611 or consent of instructor. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**CLSC 6210 - Research Seminars in Clinical Science (1 Credit)**

This course provides an overview of the types of clinical translational studies being conducted by senior CLSC doctoral students. The interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages of training, mentors and faculty.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6270 - Critical Appraisal Seminars in Clinical Science (1 Credit)**

This course provides an overview of the approaches for critically appraising common study designs published in the clinical and translational sciences literature, as well as other sources of information.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 6800 - Introduction to Health Information Technology (3 Credits)**

Course intended as overview to dynamic environment of healthcare informatics. The goal of course is to prepare healthcare professionals to better utilize/manage the emerging communication technologies. A brief introduction to e-health, telehealth, electronic medical records, telecommunications and bio-informatics is provided.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7101 - Grant Writing I (1 Credit)**

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601 and EPID 6630. Course Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)**

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 7202 - Clinical Outcomes and Applications (3 Credits)**

This course focuses on research methodologies in clinical care, costs, health systems, policy, and health outcomes, as well as an overview of major issues in clinical outcomes research. Students are provided with both theory and application through case studies.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 8990 - Doctoral Thesis (1-10 Credits)**

This course involves the student working with his/her research mentor and research project committee develop, design and execute a clinical science doctoral study as well as to write up the project as a thesis.

Prerequisite: Program consent. BIOS 6601 or BIOS 6611, BIOS 6602

or BIOS 6680 and HSMP 6617, CLSC 7150, EPID 6630, BIOS 6648 or

EPID 6626 or HSMP 6670. Restrictions: Only CLSC PhD students or

collaborative CLSC and CSPH Health Services Research Students.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**EPID 6626 - Research Methods in Epidemiology (3 Credits)**

Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research are the focus of this class. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies. Prereq: BIOS 6601, BIOS 6680, EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6630 - Epidemiology (3 Credits)**

This course provides an introduction to descriptive and analytic methods in epidemiology and their application to research, preventive medicine and public health practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EPID 6631 - Analytical Epidemiology (3 Credits)**

Fundamental analytical skills for assessing and reporting disease status, determinants of disease and their impact on public health including determining rates of disease occurrence, measures of associations between exposures and disease, and techniques for identifying and correcting for misclassifications, effect modifiers and confounder.

Prerequisites: EPID 6630 and BIOS 6601 or BIOS 6611

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HLTH 6071 - Introduction To Health Information Technology (3 Credits)**  
Examines what needs transforming in healthcare to improve value, safety, and appropriateness of care, and what the role of IT is in that transformation. IT also examines the challenges of cultural change and IT strategy in succeeding with clinical information projects. Differences between installation, implementation, transition and actual transformation are suggested, and methods for managing subcultures in healthcare (IT, clinical, administrative) are reviewed. Cross-listed with ISMG 6071. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restrictions: Restricted to HLAB, MBAH and INFS majors within the Business School.

Typically Offered: Spring.

**HLTH 6072 - Management of Healthcare Information Technology (3 Credits)**

Provides an introduction to the management of information technology in healthcare. A description of information processing, the origin, content, evolution of healthcare information systems, and the methodologies deployed to acquire and manage information requirements are discussed. Cross-listed with ISMG 6072. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restrictions: Restricted to HLAB, MBAH and INFS majors within the Business School.

Typically Offered: Fall.

**ISMG 6080 - Database Management Systems (3 Credits)**

The success of today's business often hinges on the ability to utilize critical information to make the right decisions quickly and efficiently. Transforming mountains of data into critical information to improve decision making is a skill every business decision maker must possess. This focus course covers the database design topics with a focus on enabling business decision making. Detailed topics include collecting, capturing, querying and manipulating data (using SQL and QBE) for simple to medium complex business applications. Commercial database products are utilized to demonstrate the design of database applications in management, marketing, finance, accounting, and other business areas. Students will be able to design and implement simple to medium complex database applications after successful completion of this course. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors

Typically Offered: Fall, Spring.

**NURS 6289 - Information Systems Life Cycle (4 Credits)**

This course focuses on a structured approach to information system development and implementation. The course addresses the five phases of the life cycle: planning, analysis, design, implementation and evaluation. Prereq: Minimum of one informatics course or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6293 - Database Mgmt Systems (3 Credits)**

An interdisciplinary course focused on design and application challenges in database management systems. Concepts of database modeling, querying, and reporting are explored. Students apply database concepts to clinical registries and Meaningful Use queries. Prereq: NURS 6304 or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

### Staff

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## Computational Bioscience (PhD)

The CPBS Program is globally recognized for its research and teaching of computational biology and bioinformatics at the University of Colorado's Anschutz Medical Campus. The Program is designed to produce graduates with depth in computational methods and molecular biomedicine, an intimate familiarity with the science and technology that synthesizes the two, and the skills necessary to pioneer novel computational approaches to significant biomedical questions.



To learn more about the **PhD in Computational Bioscience**, click here (p. 318) to view the information within the School of Medicine portion of the academic catalog.

## Epidemiology (PhD)

In this program, you'll gain advanced skills in analytical methods, biostatistics, and field research methods. In addition, you'll learn about grant writing and research ethics and have the opportunity to select a minor course of study. Our department has a strong base of funded research projects providing students with many opportunities for research support and data for dissertation projects.

To learn more about the **PhD in Epidemiology**, please click here (p. 130) to view the information within the Colorado School of Public Health portion of the catalog.

## Health Services Research (PhD)

In this program, you'll study how the interplay of social factors, health technologies, and personal behaviors impact healthcare access, healthcare costs, and quality of life. You'll be trained to think like a scientist, implementing and developing research studies that assess predictors of disease and the effectiveness of interventions.

To learn more about the **PhD in Health Services Research**, please click here (p. 130) to view the information within the Colorado School of Public Health portion of the catalog.

## Human Medical Genetics & Genomics (PhD)

The Human Medical Genetics and Genomics Graduate Program (HMGGP) at CU Anschutz is an interdisciplinary, interdepartmental program designed to coordinate outstanding graduate training and research opportunities in all aspects of Human and Medical Genetics. The HMGGP faculty are committed to a dynamic and outstanding program that provides training and mentorship to the next generation of leaders in the fields of human and medical genetics and genomics.

To learn more about the **PhD in Human Medical Genetics & Genomics**, please click here (p. 320) to view the information within the School of Medicine portion of the academic catalog.

## Immunology (PhD)

The doctoral program in Immunology at the University of Colorado Anschutz Medical Campus trains students in diverse areas of immunology that includes innate and adaptive immunity, host-pathogen interactions, tumor immunity, autoimmunity, immune deficiencies, and vaccine development. The Immunology Graduate Program at the University of Colorado Anschutz Medical Campus is amongst the most prominent basic Immunology graduate research training Programs in the country.

To learn more about the **PhD in Immunology**, please click here (p. 323) to view the information within the School of Medicine portion of the academic catalog.

## Integrated Physiology (PhD)

Integrated Physiology is a multidisciplinary PhD training program that prepares students for careers in biomedical research. Students in Integrated Physiology have opportunities to explore how cells, organ systems and organisms regulate complex physiological functions through integration of molecular, cellular and physiological mechanisms.

To learn more about the **PhD in Integrated Physiology**, please click here (p. 326) to view the information within the School of Medicine portion of the academic catalog.

## Medical Scientist Training Program (MD/PhD)

### Medical Scientist Training Program (MD/PhD)

The Medical Scientist Training Program provides rigorous training for students interested in a career in clinical medicine and basic science research.

The MST Program's mission is to provide students with the breadth and depth of training necessary to excel as clinician scientists.

Colorado has strengths in Molecular and Cellular Biology, Immunology, Epidemiology, Mechanical Engineering, Biomedical Engineering, Virology, Neuroscience, Endocrinology, Pharmacology, and Cancer Biology, which provides an exciting spectrum of research opportunities for MSTP students.

To learn more about the **Medical Scientist Training Program**, please click here (p. 241) to view the information in the **School of Medicine** portion of the academic catalog.

## Microbiology (PhD)

The Graduate Program in Microbiology at the University of Colorado Anschutz Medical Campus is a Ph.D. program that prepares students to contribute to an understanding of microbial species, including archaea, bacteria, fungi, helminths, protozoa, and viruses, and their positive and negative roles in the health of humans.

To learn more about the **PhD in Microbiology**, please click here (p. 338) to view the information within the School of Medicine portion of the academic catalog.

## Molecular Biology (PhD)

The Molecular Biology Program is dedicated to providing rigorous training to its students in a supportive environment. Molecular Biology faculty are members of many different departments and are applying the techniques of molecular biology to answer questions in diverse areas. Molecular biology, the science of how living things work at the molecular level, has led the recent revolution in our understanding of human disease and gave birth to the biotechnology industry. In almost all aspects of modern biomedical research, a professional knowledge of molecular biology is essential.

To learn more about the **PhD in Molecular Biology**, please click here (p. 341) to view the information within the School of Medicine portion of the academic catalog.

## Neuroscience (PhD)

The Neuroscience Training Program at the CU School of Medicine provides multidisciplinary PhD training covering the breadth of neurobiology. Hands-on research training in state-of-the-art laboratories and formal coursework in cellular and molecular neurobiology, systems, neural development, neuropharmacology, and biochemistry, propels students to competitive careers in the sciences.

To learn more about the **PhD in Neuroscience**, please click here (p. 343) to view the information within the School of Medicine portion of the academic catalog.

## Nursing (PhD)

The MS-PhD program prepares baccalaureate-prepared nurses to enter the doctor of philosophy program, which is designed to promote knowledge development for reflective, theory-based and research-guided nursing practice, after completion of a master's program focusing on a specialty nursing area.

To learn more about the **PhD in Nursing**, please click here (p. 103) to view the information in the College of Nursing portion of the academic catalog.

## Pharmaceutical Outcomes Research (PhD)

### Overview

Who decides if a drug is worth producing? Which drugs should insurance companies cover? How do we determine who gets access to lifesaving therapies? Earn your PhD in Pharmaceutical Outcomes Research and join us as we lead the way in evaluating health care interventions and their economic, clinical, and humanistic outcomes.

To learn more about the **PhD in Pharmaceutical Outcomes Research**, please click here (p. 446) to view the information within the Skaggs School of Pharmacy and Pharmaceutical Sciences portion of the academic catalog.

## Pharmaceutical Sciences (PhD)

### Overview

From drug discovery all the way to clinical trials, our PhD program in Pharmaceutical Sciences will give you ideal training to become an innovator. Major areas of study include biotechnology, molecular biophysics, drug delivery, nanotechnology, clinical pharmaceutical sciences, and medicinal chemistry.

To learn more about the **PhD in Pharmaceutical Sciences**, please click here (p. 449) to view the information within the Skaggs School of Pharmacy and Pharmaceutical Sciences portion of the academic catalog.

## Pharmacology (PhD)

The Pharmacology Training Program is truly both interdisciplinary and interdepartmental with faculty members having primary appointments in Anesthesiology, Biochemistry & Molecular Genetics, Immunology, Medicine, Neurology, Pathology, Pediatrics, Pharmaceutical Sciences, Pharmacology, and Physiology & Biophysics. Training Program faculty are internationally renowned in the areas of neuroscience, cancer biology,

cardiovascular biology, signal transduction, structural biology, and bioinformatics.

To learn more about the **PhD in Pharmacology**, please click here (p. 346) to view the information within the School of Medicine portion of the academic catalog.

## Rehabilitation Science (PhD)

The Rehabilitation Science PhD program is comprised of core and associated faculty, postdoctoral fellows, students and research assistants with a broad background, including physical therapy, medicine, psychology, engineering, and public health, all working together to improve the lives of people who live with disabilities.

To learn more about the **PhD in Rehabilitation Science**, please click here (p. 348) to view the information within the School of Medicine portion of the academic catalog.

## Structural Biology & Biochemistry (PhD)

The Structural Biology and Biochemistry (STBB) PhD Program is an interdepartmental graduate training program offered within the School of Medicine at the University of Colorado Anschutz Medical Campus in Aurora, Colorado. Student training places a major emphasis on research experiences, both in lab rotations and thesis projects, and includes a range of coursework in biochemistry, biophysics, drug design, pharmacology, and cellular, molecular, and structural biology.

To learn more about the **PhD in Structural Biology & Biochemistry**, please click here (p. 351) to view the information within the School of Medicine portion of the academic catalog.

## Toxicology (PhD)

### Overview

Come join us as we find answers to pressing medical questions in areas ranging from environmental lung disease to the effects of chemical warfare agents. We're here to help you develop independent research careers in molecular and environmental toxicology.

To learn more about the **PhD in Toxicology**, please click here (p. 450) to view the information within the Skaggs School of Pharmacy and Pharmaceutical Sciences portion of the academic catalog.

## School of Dental Medicine

### Message from Dean Denise Kassebaum

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Welcome!

The University of Colorado School of Dental Medicine (CU SDM) is an amazing research-intensive, comprehensive dental education institution with state-of-the-art clinical care facilities, located on the Anschutz Medical Campus.

The School of Dental Medicine believes dental health is critical to overall health, and we are dedicated to integrating dentistry and the other health professions through our innovative educational programs, real-world research, exceptional patient care, and life-changing community outreach

initiatives. Believing that there should not be a distinction between dental and systemic health, the SDM emphasizes our intention to integrate “dental” to improve health.

I'm inspired every day by the wealth of diversity and talent that is present at the CU SDM. I'm excited for you to take a look around our site and discover the education, research and clinical programs that are shaping tomorrow's dental workforce, creating new knowledge and providing patient-centered care.

Whether you are a prospective student with an interest in building your future, a potential faculty or partner who wants to make a difference by working with us, I am confident that after browsing our site, you will discover why the SDM is one of the most selective US dental schools and is **powering the future of integrated health**.

Thank you for your interest in the work we do.

Sincerely,

Denise Kassebaum, DDS, MS  
Professor and Dean

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## Contact Info

**CU Anschutz**  
**School of Dental Medicine**

13065 East 17th Avenue  
Aurora, CO 80045

303-724-6900

## Dental Medicine Programs

The CU School of Dental Medicine strives to achieve excellence in education, research and patient care which integrates into our dynamic curriculum for students. Located on the world-class CU Anschutz Medical Campus, our programs provide students an exceptional opportunity to learn in an interprofessional environment, participate in cutting edge research and train in real clinics on campus, across the state and around the world. These unique opportunities allow our students to graduate with the skills and confidence they need to be successful and make a positive impact in patients' lives.

With five incredible dental programs, the CU School of Dental Medicine seeks individuals with a passion for advancing oral health. Accepted students collectively form a well-rounded and diverse student body which further enhances education and patient care experiences. Explore our programs below to learn how you can be a part of our transformative programs.

- General Practice Residency in Dental Medicine (p. 220)
- Advanced Standing International Student Program (ISP) (p. 223)
- Dental Medicine: Dual Degree (DDS/MPH) (p. 226)
- Doctor of Dental Surgery (DDS) (p. 226)

- Orthodontics (Certificate) (p. 235)
- Periodontics (Certificate) (p. 237)

## School of Dental Medicine Policies

- Clinic Policy and Procedure Manual ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/clinic-policy-and-procedure-manual-2021-8-24-21.pdf?sfvrsn=542eccba\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/clinic-policy-and-procedure-manual-2021-8-24-21.pdf?sfvrsn=542eccba_2))
- Faculty Handbook ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/faculty-handbook-with-cover-2019-2020.pdf?sfvrsn=20f0b4b9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/faculty-handbook-with-cover-2019-2020.pdf?sfvrsn=20f0b4b9_2))

## Forms & Policies

The University of Colorado School of Dental Medicine is a diverse teaching, clinical care and research community comprised of dedicated students, faculty and staff working together to help further our mission.

The policies below were created to help our students maintain our high standards and ensure the best possible experience during your time here.

- Academic Policy ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/cusdm-academic-policy-approved-by-faculty-senate-12312019.pdf?sfvrsn=3a39cab9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/cusdm-academic-policy-approved-by-faculty-senate-12312019.pdf?sfvrsn=3a39cab9_2))
- Clinic Policy and Procedure Manual ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/clinic-policy-and-procedure-manual-2021-8-24-21.pdf?sfvrsn=542eccba\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/clinic-policy-and-procedure-manual-2021-8-24-21.pdf?sfvrsn=542eccba_2))
- Competency Statements (<https://dental.cuanschutz.edu/academics/competency-statements/>)
- Compliance Portal (<https://compliance.sdm.ucdenver.edu/>)
- Ethics Point Reporting (<https://secure.ethicspoint.com/domain/media/en/gui/14973/>)
- N-95 Fact Sheet ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/hcp---fact-sheet---battelle-face-masks---03-29-2020---615pm.pdf?sfvrsn=7bbad1b9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/hcp---fact-sheet---battelle-face-masks---03-29-2020---615pm.pdf?sfvrsn=7bbad1b9_2))
- **Student Handbook**
- Student Identity Verification With Remote Learning ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/cusdm-statement-on-student-id-verification-05132020.pdf?sfvrsn=b63acab9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/cusdm-statement-on-student-id-verification-05132020.pdf?sfvrsn=b63acab9_2))
- Student Leave Form ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/student-leave-form-template\\_-12-11-19.pdf?sfvrsn=d03acab9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/student-leave-form-template_-12-11-19.pdf?sfvrsn=d03acab9_2))
- Student Organizations Policy ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/7029---student-organizations.pdf?sfvrsn=254ca2b9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/7029---student-organizations.pdf?sfvrsn=254ca2b9_2))
- Technical Standards for Admission, Promotion and Graduation ([https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/technical-standards-for-admission-2013.pdf?sfvrsn=a4a1dbb9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/current-student-uploads/technical-standards-for-admission-2013.pdf?sfvrsn=a4a1dbb9_2))

## School of Dental Medicine Faculty Directory

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Community Dentistry and Population Health (<https://dental.cuanschutz.edu/faculty/facultydirectory/community-dentistry-and-population-health/>)  
 Craniofacial Biology (<https://dental.cuanschutz.edu/faculty/facultydirectory/craniofacial-biology/>)  
 Diagnostic and Biological Sciences (<https://dental.cuanschutz.edu/faculty/facultydirectory/diagnostic-and-biological-sciences/>)  
 Orthodontics (<https://dental.cuanschutz.edu/faculty/facultydirectory/orthodontics/>)  
 Pediatric Dentistry (<https://dental.cuanschutz.edu/faculty/facultydirectory/pediatric-dentistry/>)  
 Restorative Dentistry (<https://dental.cuanschutz.edu/faculty/facultydirectory/restorative-dentistry/>)  
 Surgical Dentistry (<https://dental.cuanschutz.edu/faculty/facultydirectory/surgical-dentistry/>)

## Mission, Goals & Values

### University of Colorado School of Dental Medicine

#### Mission Statement

The University of Colorado School of Dental Medicine (CU SDM), a collaborative partner on the Anschutz Medical Campus, is a diverse learning, clinical care, and research community. The CU SDM is committed to integrated health that innovates, treats and discovers for the well-being of and in-service to local and global communities.

#### Statement of Vision

CU SDM will be recognized as the leading transformative dental institution that graduates future-ready practitioners to deliver research-informed person-centered care.

#### Strategic Goals

##### Student Success

The School of Dental Medicine will provide contemporary educational programs that prepare general dentists and dental specialists with the knowledge, skills, and values to practice dentistry as critical thinkers and lifelong learners, dedicated to fulfilling the public's trust.

##### Collaborative Research

The School of Dental Medicine will increase research activities to contribute to the discovery and dissemination of new knowledge for society's benefit and to be consistent with the mission of the University of Colorado.

##### Transformative Clinical Care

The School of Dental Medicine's patient care programs will provide quality, comprehensive oral health care with a focus on prevention, and serve as a clinical educational resource for dental, post-doctoral students, and residents.

##### Community Engagement

The School of Dental Medicine will provide oral health to underserved populations in our communities, and provide programs to benefit our alumni and other members of the dental profession in Colorado, across the country and around the world.

##### Diversity, Inclusion, and Humanism

The School's education, research, and patient care programs will foster a culture of inclusion where diversity and differences are celebrated and a supportive environment for all students, faculty, and staff exists.

The School will ensure the appropriate utilization of resources while complying with federal, state, and University regulations

## General Practice Residency in Dental Medicine

This one-year, postgraduate residency program provides advanced training and clinical experiences for dentists wanting to enhance their skills and provide more robust options for comprehensive care.

The General Practice Residency (GPR) program accepts six first-year residents each year and seeks ambitious students from all backgrounds and life experiences regardless of race, sex, color, national origin, or religion. We use a holistic review process when considering applicants by reviewing a number of factors including academic credentials, national board scores, experience, community engagement, letters of recommendation, and an invitation-only interview. We encourage those interested to apply by using the following guidelines.

#### Prerequisite Requirements

- **MUST** be a graduate of a CODA accredited dental school in the United States or Canada
- **MUST** pass the National Board Dental Examinations (NBDE) Part I to apply. Part II must be completed prior to enrollment into the program.

#### Application Requirements

All applicants must apply electronically through ADEA PASS (<https://pass.liaisoncas.com/applicant-ux/#/login>). Our program is the University of Colorado School of Dental Medicine GPR515. Through this application process, we will obtain all the information needed to make a decision to offer an interview. We do participate in the Match to determine our incoming class.

The application deadline is October 1 to be considered for the following July class.

General Practice Residency (GPR) rotations are spent at various locations on the CU Anschutz Medical Campus and in the community. Rotations cover a broad spectrum of dental specialties, and residents perform complex dental procedures in endodontics, periodontics, oral surgery and fixed, removable and implant prosthodontics.

Learn more about the GPR rotations and requirements and the goals and objectives of the program.

## Anesthesia Rotation

#### Objectives

Upon completion of this rotation, residents will:

this rotation, residents will:

- Participate in the management of acute medical emergencies such as airway obstruction, blood pressure changes, respiratory depression and arrest
- Be familiar with nasal and oral intubations and the indications for each
- Be able to manage airways in patients by utilizing nasal airways
- Be able to place intravenous catheters for fluid infusion

- Be able to evaluate a patient's physical status and relate that to the procedures employed in sedation and general anesthesia
- Understand the basic pharmacology of commonly used sedative and general anesthetic agents

### Content

During this two week rotation, general practice residents actively participate in the care of surgery patients via assignment to the Department of Anesthesiology of the University of Colorado School of Medicine. While on anesthesia rotation, clinical instruction is provided by the attending and resident staff of the Anesthesia Department of University Hospital.

Residents will receive experience in:

- Starting and maintaining intravenous lines
- Oral and nasal intubation
- Anesthetic induction/administration of anesthetic agents
- Monitoring vital signs on sedated and general anesthetic patients
- Maintaining an optimum airway during anesthetic procedures
- Utilizing various equipment/instrumentation for monitoring the anesthetized patient
- Procedures and protocols for assisting and monitoring the patient during recovery

In addition to this clinical training, residents are required to attend all seminars, lectures, etc., sponsored by the anesthesia service.

## Emergency Medicine Rotation

### Objectives

Upon completion of this rotation, residents will gain:

- An introduction to basic emergency medicine
- Exposure to assessment and triage of patients
- Exposure to management of medical emergencies
- Experience in physical assessment and treatment of various patients (e.g. suturing lacerations)
- Experience in obtaining and interpreting the patient's chief complaint, medical and social history and review of systems
- Experience in obtaining and interpreting clinical and other diagnostic data from other health care providers
- Experience using the services of clinical, medical and pathological laboratories
- Experience performing two history and physical evaluations and collecting data in order to establish a medical assessment
- Experience in selection and administration of medications for emergency medical treatment, especially pain and infection
- Exposure to the medical care of an economically underserved urban and rural population of patients
- Experience in placing IV lines for fluid and sedation

### Content

During this one-week Emergency Medicine rotation, general practice residents will actively participate under the supervision of faculty and chief residents in the care of patients with the University of Colorado Hospital Emergency Department. The University Hospital serves as a primary care provider for indigent and medically underserved population of patients. The state-of-art Emergency Department (ED) serves as a

major urban Level I trauma center, thus residents are exposed to a wide variety of urgent and emergent medical situations.

During their ED time, residents are encouraged to attend all seminars and lectures sponsored by the Department of Emergency Medicine while they are on rotation. Residents will get education sessions with attending and be assigned to their own patients.

It is required that two full H&P's be completed in EPIC under H&P dentistry. These are to be signed by the attending in EPIC and the MR# provided to the GPR director. Completion of the two full H&P's *and* daily evaluations from the attendings you are working with will be considered the evaluation mechanism.

## Medicine Rotation

### Objectives

Upon completion of this rotation, residents will gain:

- Be able to perform and feel comfortable History and Physicals and Review of Symptoms for patients who are going to undergo deep intravenous sedation or general anesthesia in the operating room
- Be familiar with and participate with Oral and Maxillofacial Surgery procedures under deep intravenous sedation
- Be able to manage airways in patients by utilizing nasal airways and oral airways
- Be able to place intravenous catheters for fluid infusion
- Be able to evaluate a medically complex patient's physical status and relate that to the safety of the proposed procedures and where they should be treated safely
- Understand and learn how to utilize OMFS procedures

### Content

During this one-week rotation, general practice residents actively participate in the care of surgery patients via assignment to the Oral and Maxillofacial Surgery Department the University of Colorado School of Dental Medicine. While on the OMFS rotation, clinical instruction is provided by the attending and resident staff of the OMFS Department at the University Of Colorado School Of Dental Medicine.

Residents will receive experience in:

- Performing Histories and Physicals
- Pharmacology of the medications used in both deep sedation and General Anesthesia
- Monitoring vital signs and sedation recording on sedated and general anesthetic patients
- Experiencing a wide variety of OMFS procedures in clinic and operating room
- Rounding on OMFS patients and taking call with the OMFS residents
- Procedures and protocols for assisting and monitoring the patient during recovery
- In addition to this clinical training, residents are required to attend all seminars, lectures, etc., sponsored by the OMFS service.

## Advanced Dental Care Clinic

### Objectives



Upon completion of this rotation, residents will:

Upon completion of this rotation, residents will:

- Interact with various medical departments of the University Hospital by providing consultative and treatment services for hospitalized patients including dental care for kidney, heart, lung and bone marrow transplant patients.
- Answer acute dental emergency calls to the Emergency Medicine department at UCH
- Provide dental clearances for transplant patients, cancer patients prior to chemotherapy and head and neck cancer patients
- Request referrals, based on the medical and dental complexity of the patient's needs
- Provide general dental treatment at a level beyond that achieved in dental school including advanced restorative, prosthodontic, periodontal, endodontic, osseous implants and oral surgical procedures
- Act as primary care provider by formulating and executing a comprehensive treatment plan for a wide range of medically complex ambulatory patients
- Incorporate a preventive program into each treatment plan and into the total care of each patient
- Diagnose and treat dental emergencies and provide immediate, palliative treatment for pain and infection
- Follow recognized infection control guidelines while providing treatment for patients with chronic infectious diseases
- Understand various aspects of practice management such as appointment scheduling, efficient utilization of auxiliaries, patient and staff rapport, effective time management, impact of financial considerations on treatment planning and risk management. Understand fundamentals of associateship contracts
- Complete laboratory work for your patients, write dental laboratory prescriptions, interact with commercial dental labs and evaluate the quality of the work provided by such labs
- Participate in the oral health needs of the local and/or state communities

### Content

Residents are based at Advanced Care Clinic for approximately 10 months. The majority of time is spent in hands-on patient treatment so residents gain a wide variety of experience by providing more complex dental treatment on the medically complex, ambulatory patient.

The concept of comprehensive care is stressed, with an emphasis on the "whole" patient (medical, financial and social status, patient motivation and desires). Patient needs are assessed and taken into consideration when formulating the treatment plan and performing treatment.

Residents are assigned to Oral surgery rotation, within the Advanced Care Dental Clinic, once every 6 weeks. At this time you will be assigned only oral surgery cases. You will work closely with our OMFS attending to perform procedures like full mouth extraction cases, alveoloplasty, extractions and bone grafts, biopsy, and surgical extractions of third molars, on patients of the pre-doctoral program.

Our On Call schedule is one week on every 6 weeks. We encourage a buddy system, with one resident being first Call and the other resident being second Call. This way, you always have a second pair of hands for the difficult cases and you learn twice as much!

Techniques of efficient time management are stressed to prepare residents for the transition from dental school to private practice. Residents also learn how to use a dental assistant's and hygienist's time appropriately, to be more efficient. Residents are encouraged to utilize a wide variety of materials and techniques, both analog and digital, with a focus on those not commonly taught in dental school. Although direct faculty supervision is always present, residents are encouraged to use their own judgment in making patient care decisions.

Didactic classes are held from 7:45 - 8:45 a.m. daily, with time after to have group huddles to evaluate the patient's medical history and treatment plan and to clarify ongoing care before the clinic begins at 9:00 a.m.

### Residents receive:

- Daily feedback from faculty
- Quarterly evaluations by covering faculty
- Formal evaluations by the Program Director three times a year

With oral health and systemic health so vitally connected, the GPR program provides whole person, hands-on learning opportunities to create top graduates ready to improve lives. With this in mind, the program goals and objectives include:

### Program Goals

- Prepare residents for careers in primary care dentistry
- Implement a didactic and clinical educational program of excellence for residents
- Prepare residents to provide advanced levels of patient care
- Prepare residents to perform community service in areas of need
- Prepare residents to provide oral health care in a hospital setting

### Overall Objectives

- Train residents to be skilled in patient evaluation, laboratory diagnosis, medical history and suitable physical assessment.
- Provide each resident with a variety of patients with challenging histories in order to gain practical experience in the above skills.
- Enhance residents' oral diagnostic and treatment-planning skills to meet the comprehensive dental needs of the patient.
- Provide didactic and clinical experiences that train the resident to provide quality comprehensive dental care utilizing current and innovative technology and theory, regardless of the patient's medical, mental, emotional or physical compromise.
- Instill a sense of how hospital dentists can serve the community, especially the underserved and low-socioeconomic patient populations.
- Educate residents to competently select and apply appropriate means of pain and anxiety control, including inhalation, oral, and intravenous techniques.
- Teach hospital and operating room protocol so residents may easily admit a patient, perform a history and physical examination, order and assess laboratory tests, consult with other medical specialists, administer pre- and post-operative care and perform treatment in an operating room setting.
- Provide intensive education in the recognition and management of medical emergencies in the dental setting.

- Ensure residents learn to diagnose and treat common dental emergencies and recognize when to refer more complex problems to the appropriate medical or dental specialists.
- Develop residents' knowledge, skill and confidence to participate in a multidisciplinary treatment team.
- Enhance residents' understanding of practice administration and supervision of auxiliary personnel.
- Develop residents' ability to retrieve, critically review and assess pertinent scientific literature.

## Advanced Standing International Student Program (ISP)

The Advanced Standing International Student Program (ISP) offers dentists who earned a bachelor degree in dentistry outside of the United States the opportunity to earn a Doctor of Dental Surgery (DDS) degree at CU Dental. Graduates of this two-year, accelerated DDS program may take any state or regional board, and thus are eligible for licensure to practice in the United States.

## Advanced Standing International Student Program (ISP)

The Advanced Standing International Student Program (ISP) accepts 40 internationally-trained dentists each year. CU Dental is committed to attracting highly qualified students from a variety of backgrounds and life experiences and has accepted students from over 50 different countries. We use a holistic review process when considering applicants by reviewing a number of factors including academic credentials, TOEFL score, community engagement, letters of recommendation, and an invitation-only interview.

### Admission Requirements

- Dental degree from an accredited international dental program (Provisional degrees are not accepted)
- Pass Part I of the National Dental Board Exam
- TOEFL Score of 94 or better (No exceptions are made regardless of native language or courses taken)

**We do not grant exceptions to any of the above items under any circumstances.**

The Advanced Standing International Student Program (ISP) consists of didactic courses supported by on-line resources, preclinical simulated courses and clinical courses involving direct patient care in the school's clinics.

## First Year

The ISP program is a hybrid program where ISP students take some of their courses with just their ISP cohort and other courses with the traditional dental students. This has been designed specifically to fast-track courses that incoming advanced standing students will already have taken. Thus, the first two to three months are spent in fast-paced, intensive pre-clinical courses both didactic and simulated labs. ISP students begin to see their first patients during the 3rd month of school in the Periodontics Clinic and Transition Clinic.

The courses just for ISPs include restorative dentistry, occlusion, complete and removable prosthodontics, fixed prosthodontics,

endodontics, esthetic dentistry, oral radiology, and implant dentistry. Additionally, students take multiple lecture courses alongside second year dental students including clinical dental pharmacology, orofacial pain, oral surgery, infection control, diagnostic radiology, pediatric dentistry, pain control and medical emergencies.

Beginning in the summer, ISP students will regularly see patients in the clinics, and begin performing restorative, endodontics, operative dentistry, periodontics, oral diagnosis, emergency and oral surgery procedures. The time spent in the clinic is integrated with the traditional students. Students also participate in a case presentation seminar where they present treatment plans and patient cases to their faculty and peers.

Finally, ISP students take a course in communications and behavior change in order to bring international students up to par with American patient expectations. This interactive course is designed to facilitate the transition to the American clinical setting with an emphasis on systemic and oral health.

Course	Title	Hours
<b>First Year</b>		
<b>Spring</b>		
DISP 7100	Principles of Direct and Indirect Restorations Didactic	0.1-5
DISP 7101	Principles of Direct and Indirect Restorations Lab	0.1-5
DISP 7102	Occlusion	0.1-5
DISP 7103	Occlusion Laboratory	0.1-5
DISP 7106	Clinical Practice Ethics	0.1-5
DISP 7107	Clinical Dental Materials	0.1-5
DISP 7111	Complete and Removable Prosthodontics 1	0.1-5
DISP 7112	Cariology	0.1-5
DISP 7114	Complete and Removable Prosthodontics Lab 1	0.1-5
DISP 7121	Endodontics 1 and 2	0.1-5
DISP 7122	Periodontology 3	0.1-5
DISP 7123	Periodontology 3 Laboratory - Section 1	0.1-5
DISP 7124	Clinical Dental Pharmacology	0.1-5
DISP 7125	Pain Control 1 (Local Anesthesia)	0.1-5
DISP 7126	Prevention and Management of Medical Emergencies	0.1-5
DISP 7129	Introduction to Clinical Dentistry	0.1-5
DISP 7130	Oral Radiology	0.1-5
DISP 7131	Oral Radiology Lab	0.1-5
DISP 7160	Managing Your Student Practice	0.1-5
DISP 7163	Transition Clinic for ISP Students	0.1-5

**Hours 2.0000000000000004-100**

**Total Hours 2.0000000000000004-100**

Course	Title	Hours
<b>First Year</b>		
<b>Summer</b>		
DISP 7113	Complete and Removable Prosthodontics 2	0.1-5
DISP 7114	Complete and Removable Prosthodontics Lab 1	0.1-5
DISP 7119	Communication and Behavior Change	0.1-5
DISP 7121	Endodontics 1 and 2	0.1-5

DISP 7132	Diagnostic Radiology	0.1-5
DISP 7140	Pediatric Dentistry 1	0.1-5
DISP 7202	Case Presentation 1	0.1-5
DISP 7203	Fixed Prosthodontics	0.1-5
DISP 7204	Fixed Prosthodontics Laboratory	0.1-5
DISP 7205	Comprehensive Patient Care Clinic A	0.1-5
DISP 7216	Seminars in Restorative Dentistry	0.1-5
DISP 7220	Pain Control 2 (Nitrous Oxide Analgesia)	0.1-5
DISP 7223	Periodontology 3 Laboratory - Section 2	0.1-5
DISP 7231	Assessment of the Dental Patient	0.1-5
DISP 7232	Clinical Oral Diagnosis	0.1-5
DISP 7320	Oral and Maxillofacial Surgery 2	0.1-5
DISP 7321	Periodontology 4	0.1-5
<b>Hours</b>		<b>1.7000000000000004-85</b>
<b>Total Hours</b>		<b>1.7000000000000004-85</b>

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
DISP 7211	Endodontics 1 Laboratory	0.1-5
DISP 7240	Pediatric Dentistry 2	0.1-5
DISP 7300	Case Presentation 2, Case Presentation	0.1-5, 1.8
DISP 7301	Comprehensive Care Clinic B	0.1-5
DISP 7310	Implant Dentistry	0.1-5
DISP 7314	Esthetic Dentistry	0.1-5
DISP 7318	Critical Thinking and Patient Care Seminar	0.1-5
DISP 7320	Oral and Maxillofacial Surgery 2	0.1-5
DISP 7323	Dental Pain and Emergencies	0.1-5
DISP 7328	Clinical Periodontics	0.1-5
DISP 7330	Oral Pathology I	0.1-5
DISP 7331	Clinical Oral Diagnosis	0.1-5
DISP 7335	Clinical Fixed Prosthodontics	0.1-5
DISP 7336	Clinical Operative Dentistry	0.1-5
DISP 7337	Clinical Removable Prosthodontics	0.1-5
DISP 7340	Pediatric Dentistry 3	0.1-5
DISP 7380	Dentistry for Adults with Special Health Care Needs	0.1-5
DISP 7708	Dental Materials Seminar	0.1-10
DISP 7710	Behavioral Health	0.1-5
DISP 7711	Geriatrics and Gerontology	0.1-5
<b>Hours</b>		<b>2.0000000000000004-101.8</b>
<b>Total Hours</b>		<b>2.0000000000000004-101.8</b>

## Second Year

ISP students who do not enter with Part 2 or INBDE complete will take the exam between their first and second years of the ISP program.

During the second year, students continue to practice comprehensive patient care. Additionally, students take multiple courses in hospital dentistry, oral pathology, clinical oncology, forensic dentistry, dental ethics, public health and orthodontics alongside second and third year dental students.

In the second year, students begin preparing for state or regional board examinations in order to become licensed dentists in the United States. Depending on where the student will practice after graduation will dictate when and where the tests take place.

### Optional Curriculum

ISP students also have some additional elective credits and research projects that they can opt to pursue. Students participate in these based upon their interests, as well as the amount of time they can dedicate above the required curriculum. They are not a part of the standard curriculum and can occur throughout their time of study, however, it is highly recommended that they not begin until after the first semester. These include a global health dentistry course, Guatemala CU Smiles Program, our Advanced Clinical Training Service Program (ACTS), and research.

Course	Title	Hours
<b>Second Year</b>		
<b>Spring</b>		
DISP 8100	Case Presentation 3	0.1-5
DISP 8101	Comprehensive Patient Care Clinic C	0.1-5
DISP 8110	Restorative Dentistry Advanced Clinical Training Service Seminar	0.1-5
DISP 8116	Critical Appraisal of Translational Literature	0.1-5
DISP 8120	Endodontics 3	0.1-5
DISP 8123	Clinical Endodontics	0.1-5
DISP 8124	Clinical Periodontics	0.1-5
DISP 8125	Clinical Oral Maxillofacial Surgery	0.1-5
DISP 8129	The Medically Complex Patient in your Practice	0.1-10
DISP 8130	Clinical Oncology	0.1-5
DISP 8131	Oral Pathology 2	0.1-5
DISP 8133	Clinical Oral Diagnosis	0.1-5
DISP 8135	Clinical Operative Dentistry	0.1-5
DISP 8136	Clinical Fixed Prosthodontics	0.1-5
DISP 8137	Clinical Removable Prosthodontics	0.1-5
DISP 8140	Clinical Pediatric Dents	1.5
DISP 8160	Dental Ethics and Jurisprudence	0.1-5
DISP 8161	Practice Management	0.1-5
DISP 8162	Dental Practice Planning	0.1-5
DISP 8176	Community Public Health 3	0.1-5
DISP 8203	Special Care Clinic A	0.1-5
DISP 8209	Advanced and Digital Prosthodontics	0.1-5
DISP 8612	Orofacial Pain	0.1-5
<b>Hours</b>		<b>3.7000000000000006-116.5</b>
<b>Total Hours</b>		<b>3.7000000000000006-116.5</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Summer</b>		
DISP 8105	Evidence-Based Topical Reviews	0.1-5
DISP 8125	Clinical Oral Maxillofacial Surgery	0.1-5
DISP 8200	Case Presentation 4	0.1-5
DISP 8201	Comprehensive Patient Care Clinic D	0.1-5
DISP 8206	Special Care Clinic B	0.1-5

DISP 8220	Clinical Endodontics, Clinical Endodontics	0.1-5, 0.3
DISP 8222	Clinical Periodontics	0.1-5
DISP 8225	Clinical Fixed Prosthodontics	0.1-5
DISP 8226	Clinical Operative Dentistry	0.1-5
DISP 8227	Clinical Removable Prosthodontics	0.1-5
DISP 8231	Clinical Oral Diagnosis	0.1-5
DISP 8240	Clinical Pediatric Dentistry	0.1-5
DISP 8251	Clinical Orthodontics	0.1-5
DISP 8258	Diagnosis of Orofacial Lesions	0.5-10
DISP 8350	Orthodontics	0.1-10
<b>Hours</b>		<b>1.9000000000000001-80.3</b>
<b>Total Hours</b>		<b>1.9000000000000001-80.3</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
DISP 8105	Evidence-Based Topical Reviews	0.1-5
DISP 8110	Restorative Dentistry Advanced Clinical Training Service Seminar	0.1-5
DISP 8207	Special Care Clinic C	0.1-5
DISP 8300	Case Presentation 5	0.1-5
DISP 8301	Comprehensive Patient Care Clinic E	0.1-5
DISP 8310	Advanced Implant Prosthodontics Seminar	0.1-5
DISP 8321	Clinical Endodontics	0.1-5
DISP 8323	Clinical Periodontics	0.1-5
DISP 8325	Clinical Fixed Prosthodontics	0.1-5
DISP 8326	Clinical Operative Dentistry	0.1-5
DISP 8327	Clinical Removable Prosthodontics	0.1-5
DISP 8328	Clinical Oral Radiology	0.1-5
DISP 8330	Clinical Oral Diagnosis	0.1-5
DISP 8355	Clinical Emergencies	0.1-5
<b>Hours</b>		<b>1.4000000000000001-70</b>
<b>Total Hours</b>		<b>1.4000000000000001-70</b>

**Graduation from the University of Colorado School of Dental Medicine is contingent upon:**

- Completion of all required courses with a minimum cumulative GPA of 2.30
- Fulfillment of all legal and financial obligations to the University
- Successful completion of the National Board Dental Examinations Part I and Part II
- Removal of probationary status if on academic probation. In the situation where a student is placed on academic probation at the end of his/her last semester of their program, the student is given the opportunity to rectify academic deficiency/deficiencies needed to remove the probationary status. This may be accomplished by performing additional coursework as dictated by course director(s) and as approved by the SPC to allow the granting of a higher 11 grade in select courses as needed to remove the student from academic probation. This may result in a lengthening of their academic program and a delay in their graduation from the SDM
- Recommendation for the degree by vote of the Faculty (Competency Review Board) of the University of Colorado School of Dental Medicine

**Critical Thinking**

- Evaluate and integrate emerging trends in health care
- Utilize critical thinking to evaluate and integrate best research outcomes with clinical expertise and patient values for evidence-based practice.

**Professionalism**

- Make professional decisions that satisfy legal, societal and ethical principles.
- Use self-evaluative skills to assess individual knowledge and abilities, to practice within the scope of one's competence and make appropriate professional referrals, and to identify areas of deficiency to correct through lifelong learning.
- Collaborate effectively with other health professionals to facilitate the provision of overall health care.

**Communication and Interpersonal Skills**

- Apply appropriate interpersonal and communication skills to create a humanistic environment.
- Communicate effectively with diverse patients and other health care providers to ensure appropriate, patient-centered patient treatment.

**Health Promotion**

- Provide prevention, intervention and educational strategies.
- Participate with dental team members and other health care professionals in the management and health promotion for all patients.
- Recognize and appreciate the need to contribute to the improvement of oral health beyond those served in traditional practice settings.

**Practice Management and Informatics**

- Evaluate and apply regulatory agency requirements for dental practices such as infection control, HIPAA and environmental and office safety programs
- Apply principles of risk management including informed consent
- Demonstrate effective business practices, financial management and human resource skills

**Patient Care**

**Assessment, Diagnosis and Treatment Planning**

- Perform an examination that collects biological, psychological, clinical, radiographic and other diagnostic/consultative information required to evaluate the health, oral conditions, needs, and expectations of patients of all ages.
- Recognize, diagnose and interpret normal and abnormal conditions of the orofacial complex (to include oral cancer), occlusal and temporomandibular disease, craniofacial growth and development that require monitoring, treatment or management.
- Develop, present and discuss individual sequenced treatment plans for patients of all ages consistent with patient's condition, interest, goals and capabilities.

**Establishment and Maintenance of a Healthy Oral Environment**

**Management of Emergency Situations**

- Anticipate, diagnose, and provide initial treatment and follow-up management for medical emergencies that may occur during dental treatment
- Recognize and manage dental emergencies to include acute pain, hemorrhage, trauma, and infection of the orofacial complex

#### Control of Pain and Anxiety

- Employ pharmacological agents and techniques to manage orofacial discomfort and psychological distress

#### Periodontal Therapy

- Diagnose, treatment plan, comprehensively treat, and maintain patients with periodontal disease in the primary, mixed, and permanent dentitions

#### Endodontic Therapy

- Diagnose and treat diseases of pulpal and periradicular origin in the primary, mixed, and permanent dentitions

#### Surgical and Non-Surgical Therapies

- Diagnose and treat conditions requiring reparative surgical procedures and non-surgical therapies on the hard and oral soft tissues

#### Restorative/Prosthodontic Therapy

- Provide single or multiple tooth restorations, with appropriate fixed or removable techniques, to restore anatomic form, function, and esthetics to patients of all ages.
- Continually analyze the outcomes of patient treatment to improve patient care.

## Dental Medicine: Dual Degree (DDS/MPH)

The CU School of Dental Medicine and the Colorado School of Public Health have joined together to offer dental students the unique opportunity to earn their Doctor of Dental Surgery (DDS) and Masters of Public Health (MPH) degrees.

Additional information may also be viewed on the **Colorado School of Public Health's dual degree** page (p. 122).

## Doctor of Dental Surgery (DDS)

For more than 40 years, CU Dental has been educating competent and compassionate dentists through quality educational experiences personalized for each of our successful graduates. Through combining classroom and clinical training, students master the skills required to deliver comprehensive dental care and become leaders in their field.

CU Dental students have learned to expect and enjoy the school hallmarks that make us unique, including:

- Rotating through our Advanced Clinical Training Service (ACTS) program (<https://dental.cuanschutz.edu/prospective-students/programs-of-study/doctor-of-dental-surgery/curriculum/acts-program/>) - a nationally recognized service-learning program allowing 4th year DDS students to provide dental services for eight months in an underserved community in 30 clinics across the state of Colorado.
- Participating in campus-wide interprofessional education programs, including our national award-winning Frontier Center program, aims to increase collaboration across health disciplines and improve patient outcomes.
- Giving back to our military veterans by providing free and reduced dental care at the CU Heroes Clinic.
- Taking advantage of our research opportunities where dental students help address issues related to oral health and diseases, cancer research, biomaterials, bioengineering, and craniofacial biology.

The CU School of Dental Medicine is committed to attracting highly qualified students from a variety of educational backgrounds and life experiences. We use a holistic review process when considering applicants, and look at a number of factors including academic credentials, test scores, letters of recommendation and an invitation only interview.

If you have any questions regarding admission requirements and procedures, please contact the Office of Admissions at 303-724-8719 or [DDSadmissioninquiries@ucdenver.edu](mailto:DDSadmissioninquiries@ucdenver.edu).

We encourage all interested individuals to apply by following the requirements below:

## Prerequisite Requirements

The following courses (semester hours or equivalent quarter hours) are required to apply to the School of Dental Medicine. All coursework must be completed with a grade of C or better from an accredited U.S. college or university at the conclusion of the spring term of the year accepted. Grades of C- or lower and courses taken pass/fail or credit/no credit will not be accepted. No more than 60 semester hours are allowed from a community/junior college. Online coursework is accepted with pre-approval. High school advanced placement (AP) courses can be accepted for prerequisite course work, and will be evaluated on a case by case basis. Official documentation will be required to include AP scores. If you are an international student, please contact the admissions office directly.

- General Biology or General Zoology with Lab (8 semester hours)
- General Chemistry with Lab (8 semester hours)
- Organic Chemistry with Lab (8 semester hours)



- General Physics with Lab, Algebra or Calculus based (8 semester hours)
- Microbiology, Lab not required (3 semester hours)
- General Biochemistry, Lab not required (3 semester hours)
- English Composition (3 semester hours)
- 90 semester hours with at least 30 hours of upper division credit

The minimum requirement for admission is 90 semester hours (or approximately 135 quarter hours) of academic coursework, but completing a bachelor's degree is strongly encouraged. Most applicants will have completed at least a bachelor's degree before matriculation to dental school.

**Suggested Electives:** Courses to consider include anatomy, cell biology, histology, immunology, physiology, business management/finance, psychology and communications. Courses may be in a single area with a general background in many areas, or may group together several related areas in the sciences or humanities.

## Application Requirements

Applicants apply through the American Dental Education Association (ADEA) application service. **Applications may be filed beginning June 1 of the year preceding admission. The latest filing date is October 15.** While a rolling admissions process is utilized, which may extend acceptances through March of the admission cycle year, early application is strongly encouraged as acceptances are offered as early as December 1. Only completed applications are reviewed.

Please send the following directly to ADEA:

- Completed AADSAS application (<https://aadsas.liaisoncas.com/applicant-ux/#/login>) - available online at American Dental Education Association (ADEA)
- Official transcripts from all colleges, universities and professional schools you attended
- Letters of recommendation:
  - Two letters from science instructors AND one letter from a non-science instructor, dentist you shadowed or employer, **OR**
  - Pre-Dental Committee letter (must include two science instructors)

**An \$90.00 application fee is due with the application.** A separate e-mail will be sent out with instructions on how to submit payment.

Supplemental application materials are required **only upon request**.

## Dental Admission Test (DAT)

Applicants are required to complete the Dental Admissions Test (DAT), which is administered by the American Dental Association (ADA). Official DAT scores must be sent to AADSAS (see instructions for sending DAT scores under Standardized Tests) ([https://www.adea.org/GoDental/ADEA\\_AADSAS\\_Application/Academic\\_history.aspx#sthashMWm82LFdpdbs](https://www.adea.org/GoDental/ADEA_AADSAS_Application/Academic_history.aspx#sthashMWm82LFdpdbs)).

While there is no minimum or cutoff, DAT scores close to the averages of the most recent entering class are considered competitive. See Class Profile for the most current scores.

The DAT should either be taken before application or in June/July of the application year. Scores must be received **before** the application deadline of October 15th. In order to meet this deadline, tests should not be taken after August 31st of the application year.

**Retake tests:** If planning to retake the DAT during the application cycle, an applicant should report future test dates on the AADSAS application.

**Canadian DAT:** Please note that the Canadian Dental Admissions Test (CDAT) is not accepted. The US DAT is required of all applicants.

## Dental Shadowing Requirements

Applicants should demonstrate a confirmed interest in dentistry by participating in dental-related activities, including direct shadowing of a dentist in a patient-care setting. Shadowing hours should be reported directly on the AADSAS application. No further documentation is required.

**50 hours of dental shadowing** is required and must be completed at the time of application submission. Applicants without this minimum number of hours will not be reviewed or considered for interview.

## Extracurricular Activities

Applicants should report any extracurricular activities in which they are involved, dental-related or otherwise, on the AADSAS application. Such activities could include (but are not limited to) academic enrichment programs, athletics, clubs and organizations, research, volunteering, and work experience.

For each extracurricular, applicants must provide the frequency and duration of the experience, a description of the key responsibilities, and the name and address of the organization or supervisor.

## Letters of Recommendation

The University of Colorado School of Dental Medicine requires a total of three letters of recommendation, although AADSAS allows up to four. Letters must be uploaded directly to the application by the evaluators. **Letters sent directly to the Office of Admissions are no longer accepted.** Of the four allotted AADSAS uploads, applicants must have:

- **Two science letters** - Two letters must be written by science professors who have taught and graded the applicant at the university level. Letters should be from basic science instructors (biology, chemistry, physics, biochemistry, microbiology). Science letters should include the course name and number.
- **One letter of choice** - One letter by an evaluator of the applicant's choice is also required. This evaluator could be a dentist, another professor (science or non-science), an employer, a mentor, or another individual who can write in support of the applicant.

A fourth letter of recommendation will also be accepted but is not required. This optional fourth letter can be written by another evaluator of the applicant's choice.

- **Committee letter option:** If the applicant's undergraduate institution has a pre-health committee, a letter or letter packet composed by the committee members can be submitted in place of the above three letters. AADSAS also allows one individual letter to be uploaded in addition to the committee letter, which is accepted but not required.

## Interview

Once the completed application has been reviewed by the Office of Admissions, the applicant may be invited to campus for a formal interview and tour of our school.

## Application Fee

Applicants are required to pay an \$90 supplemental application fee directly to the University of Colorado School of Dental Medicine. This fee is separate from any payments made to AADSAS and can only be made online via credit or debit card.

Checks, money orders, and payments over the phone are not accepted. This payment should be made either just before or at the time of application submission.

**AADSAS Fee Assistance Program:** The \$90 nonrefundable application fee can be waived for applicants who qualify for the AADSAS Fee Assistance Program ([https://help.liaisonedu.com/ADEA\\_AADSAS\\_Applicant\\_Help\\_Center/Starting\\_Your\\_ADEA\\_AADSAS\\_Application/Getting\\_Started\\_with\\_Your\\_ADEA\\_AADSAS\\_Application/03\\_Application\\_Fees\\_and\\_Fee\\_Assistance\\_Program/#sthashNpuoJ2fVdpbs](https://help.liaisonedu.com/ADEA_AADSAS_Applicant_Help_Center/Starting_Your_ADEA_AADSAS_Application/Getting_Started_with_Your_ADEA_AADSAS_Application/03_Application_Fees_and_Fee_Assistance_Program/#sthashNpuoJ2fVdpbs)). Such applicants should forward their approval email from AADSAS to our office at [DDSadmissioninquiries@ucdenver.edu](mailto:DDSadmissioninquiries@ucdenver.edu).

## Year 1

First-year courses focus on the basic sciences and the integration of this knowledge with the practice of dentistry. These include a human body systems course series that integrates the anatomy, physiology and microanatomy of each major body system with clinical correlations. Other basic science courses include molecular biosciences, embryology, craniofacial biology, oral histology, microbiology, immunology, and pathology. Additionally, students are introduced to dental care in courses related to dental anatomy, occlusion, oral radiology, periodontology, dental materials, and an innovative Introduction to Clinical Dentistry course series that prepares and provides students with patient care activities. Finally, students begin to develop their hand skills by taking simulation lab courses in both direct and indirect restorative procedures.

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
DSBS 5502	Microanatomy	0.1-5
DSBS 5504	Human Anatomy	0.1-10
DSBS 5507	Molecular Biosciences	0.1-5
DSBS 5508	Physiology	0.1-5
DSCD 5501	Community Public Health 1	0.1-5
DSRE 5001	Introduction to Dentistry	0.1-5
DSRE 5500	Dental Anatomy	0.1-5
DSRE 5501	Dental Anatomy Laboratory	0.1-5
DSRE 5504	Dental Materials Science I	0.1-5
DSRE 5520	Introduction to Clinical Dentistry 1	0.1-5

DSSD 5501	Clinical Correlations	0.1-5
	<b>Hours</b>	<b>1.0999999999999999-60</b>
	<b>Total Hours</b>	<b>1.0999999999999999-60</b>
<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Year 1</b>		
<b>Spring</b>		
DSBS 5500	Embryology and Craniofacial Biology	0.1-5
DSBS 5506	Oral Histology	0.1-5
DSBS 5511	Invaders and Protectors	0.1-5
DSOD 5502	Oral Radiology	0.1-5
DSOD 5503	Oral Radiology Laboratory	0.1-5
DSOP 5504	Principles of Operative Dentistry Direct Restoration I	0.1-5
DSOP 5505	Principles of Operative Dentistry - Direct Restoration 1 Lab	0.1-5
DSRE 5521	Introduction to Clinical Dentistry 2	0.1-5
IPCP 5000	Interprofessional Collaborative Practice	1
	<b>Hours</b>	<b>1.7999999999999998-41</b>
	<b>Total Hours</b>	<b>1.7999999999999998-41</b>
<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Year 1</b>		
<b>Summer</b>		
DSBS 5516	Pathology	0.1-5
DSCD 5502	Nutrition	0.1-5
DSCD 5503	Person Centered Care	0.1-5
DSOD 5500	Assessment of the Dental Patient	0.1-0.7
DSOP 5506	Principles of Operative Dentistry - Direct Restorations 2	0.1-5
DSOP 5507	Principles of Operative Dentistry - Direct Restorations 2 Lab	0.1-5
DSPE 5500	Periodontics 1	0.1-5
DSRE 5503	Dental Materials 2	0.1-5
DSRE 5508	Indirect Single Tooth Restoration 1	0.1-5
DSRE 5522	Introduction to Clinical Dentistry 3	0.1-5
	<b>Hours</b>	<b>0.9999999999999999-45.7</b>
	<b>Total Hours</b>	<b>0.9999999999999999-45.7</b>

## Year 2

The primary focus of second year courses is to guide students in the transition from pre-clinical courses to clinical care and begin to see their first patients for periodontal appointments during the fall of their second year. Students refine their hand skills in pre-clinical lab courses involving indirect restorative procedures, fixed and removable prosthodontics, endodontics and esthetic dentistry. Clinical care is emphasized in courses related to pharmacology, occlusion, oral pathology, orthodontics, periodontics, endodontics, dental materials, oral radiology, cariology, pediatric dentistry, pain control, medical emergencies and oral and maxillofacial surgery. Students will also take courses on treatment planning and managing a student practice in order to begin providing comprehensive patient care in the student dental clinic during the summer of their second year. The primary focus of third year is the development and practice of clinical dentistry. Students take courses on community assessment, public health, dental practice planning, clinical oncology, behavioral and geriatric dentistry, implant dentistry and treatment planning. Students begin to spend a lot more time in the clinical setting with the primary focus being on comprehensive patient care. Students perform clinical procedures in the fields of oral diagnosis and diagnostic radiology, periodontics, operative dentistry, fixed and removable prosthodontics, orthodontics, endodontics, dental pain and emergencies. Additionally, all students participate in a rotation in pediatric dentistry at the Healthy Smiles Clinic at Children's Hospital Colorado (<https://www.childrenscolorado.org/doctors-and-departments/departments/dental/>).

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Year 2</b>		
<b>Fall</b>		
DSBS 6600	Fundamentals of Pharmacology	0.1-10
DSBS 6604	Advanced Head and Neck Anatomy	0.1-5
DSCD 6601	Community Public Health 2	0.1-5

DSCD 6622	Managing Your Student Practice 1	0.1-5
DSO 6610	Oral Pathology 1	0.1-5
DSOT 6610	Orthodontics 1	0.1-5
DSPE 6601	Periodontology 2	0.1-10
DSPE 6605	Periodontology 2 Laboratory - Section 1	0.1-5
DSRE 6600	Transition Clinic 1	0.1-5
DSRE 6606	Indirect Single Tooth Restoration 2	0.1-5
DSRE 6607	Indirect Single Tooth Restoration 2 Laboratory	0.1-5
DSRE 6645	Cariology	0.1-5
DSRP 6600	Combined Removable Prosthodontics	0.1-5
DSRP 6601	Combined Removable Prosthodontics Laboratory	0.1-5
IPHE 6000	IPE Healthcare Ethics & Health Equity	1

**Hours** **2.4000000000000004-81**

**Spring**

DSBS 6603	Applied Clinical Pharmacology	0.5-10
DSCD 6623	Managing Your Student Practice 2	0.1-5
DSEN 6610	Endodontics 1 Lecture	0.1-5
DSEN 6611	Endodontics 1 Laboratory	0.1-5
DSFD 6610	Fixed Prosthodontics	0.1-5
DSFD 6611	Fixed Prosthodontics Laboratory	0.1-5
DSO 6612	Oral Pathology 2	0.1-5
DSOP 6600	Pre-Clinical Operative Dentistry Workshop	0.1-5
DSPD 6620	Pediatric Dentistry 1	0.1-5
DSPE 6606	Periodontology 3 Laboratory	0.1-5
DSPE 6607	Periodontology 3	0.5-10
DSRE 6601	Transition Clinic 2	0.1-5
DSRE 6609	Treatment Planning	0.1-5
DSRE 6610	Clinical Dental Materials	0.1-5
DSSD 6600	Clinical Dental Pharmacology	0.1-5
DSSD 6604	Pain Control 1 (Local Anesthesia)	0.1-5
DSSD 6608	Prevention and Management of Medical Emergencies	0.1-5
DSSD 6612	Orofacial Pain	0.1-5

**Hours** **2.6000000000000005-100**

**Summer**

DSEN 6612	Endodontics 2 Lecture	0.1-5
DSEN 6613	Endodontics 2 Laboratory	0.1-5
DSFD 6031	Clinical Fixed Prosthodontics 1	0.1-5
DSOD 6031	Clinical Oral Diagnosis 1	0.1-5
DSOP 6031	Clinical Operative Dentistry 1	0.1-5
DSOP 6610	Seminars in Restorative Dentistry	0.1-5
DSOS 6031	Oral and Maxillofacial Surgery 1	0.1-5
DSPD 6630	Pediatric Dentistry 2	0.1-5
DSPE 6031	Clinical Periodontics 1	0.1-5
DSPE 6610	Periodontology 4	0.1-5
DSRE 6602	Transition Clinic 3	0.1-5
DSRE 6604	Esthetic Dentistry	0.1-5
DSRE 6615	Comprehensive Patient Care Clinic A	0.1-5
DSRP 6031	Clinical Removable Prosthodontics 1	0.1-5
DSSD 6610	Pain Control 2 (Nitrous Oxide Analgesia)	0.1-5

**Hours** **1.5000000000000002-75**

**Total Hours** **6.500000000000001-256**

## Year 3

The primary focus of third year is the development and practice of clinical dentistry. Students take courses on community assessment, public health, dental practice planning, clinical oncology, behavioral and geriatric dentistry, implant dentistry and treatment planning. Students begin to spend a lot more time in the clinical setting with the primary focus being on comprehensive patient care. Students perform clinical procedures in the fields of oral diagnosis and diagnostic radiology, periodontics, operative dentistry, fixed and removable prosthodontics, orthodontics, endodontics, dental pain and emergencies. Additionally, all students participate in a rotation in pediatric dentistry at the Healthy Smiles Clinic at Children's Hospital Colorado (<https://www.childrenscolorado.org/doctors-and-departments/departments/dental/>).

Course	Title	Hours
<b>Year 3</b>		
<b>Fall</b>		
DSCD 7702	Integration for Patient Care 1	0.1-10
DSCD 7705	Clinical Transformations: Interprofessional Education	0.1-5
DSCD 7710	Behavioral Health	0.1-5
DSCD 7711	Geriatrics and Gerontology	0.1-5
DSCD 7730	Dentistry for Adults with Special Health Care Needs	0.1-5
DSEN 7011	Clinical Endodontics 1	0.1-5
DSFD 7011	Clinical Fixed Prosthodontics 2	0.1-5
DSOD 7011	Clinical Oral Diagnosis 2	0.1-5
DSOP 7011	Clinical Operative Dentistry 2	0.1-5
DSOS 7011	Oral and Maxillofacial Surgery 2	0.1-5
DSPD 7011	Clinical Pediatric Dentistry 1	0.1-5
DSPD 7700	Pediatric Dentistry 3	0.1-5
DSPE 7011	Clinical Periodontics 2	0.1-5
DSRE 7708	Dental Materials Seminar	0.1-10
DSRE 7712	Implant Dentistry	0.1-5
DSRE 7717	Comprehensive Patient Care Clinic B	0.1-5
DSRE 7718	Critical Thinking and Patient Care Seminar	0.1-5
DSRE 7935	Treatment Planning and Case Presentation I	0.1-5
DSRP 7011	Clinical Removable Prosthodontics 2	0.1-5
DSSD 7712	Dental Pain and Emergencies	0.1-5
<b>Hours</b>		<b>2.0000000000000004-110</b>
<b>Spring</b>		
DSCD 7703	Integration for Patient Care 2	0.1-10
DSCD 7706	Clinical Transformations: Interprofessional Education	1-5
DSCD 7709	Community Public Health 3	0.1-5
DSCD 7713	INBDE Preparation Course 1	0.1-10
DSCD 7726	Dental Practice Planning	0.1-5
DSCD 7796	Special Care Clinic A	0.1-5
DSDD 7703	The Medically Complex Patient in your Practice	0.1-10
DSEN 7022	Clinical Endodontics 2	0.1-5
DSEN 7712	Endodontics III	0.1-5
DSFD 7022	Clinical Fixed Prosthodontics 3	0.1-5
DSOD 7022	Clinical Oral Diagnosis 3	0.1-5
DSOD 7715	Diagnosis of Orofacial Lesions	0.1-5
DSOD 7724	Diagnostic Radiology	0.1-5
DSOD 7755	Clinical Oncology	0.1-5
DSOP 7022	Clinical Operative Dentistry 3	0.1-5
DSOT 7021	Clinical Orthodontics 1	0.1-5
DSOT 7720	Orthodontics 2	0.1-5
DSPD 7022	Clinical Pediatric Dentistry 2	0.1-5
DSPE 7022	Clinical Periodontics 3	0.1-5
DSRE 7706	Critical Appraisal of Translational Literature	0.1-5



DSRE 7711	Advanced and Digital Prosthodontics	0.1-5
DSRE 7719	Comprehensive Patient Care Clinic C	0.1-5
DSRE 7936	Treatment Planning and Case Presentation 2	0.1-5
DSRP 7022	Clinical Removable Prosthodontics 3	0.1-5
<b>Hours</b>		<b>3.30000000000002-135</b>
<b>Summer</b>		
DSCD 7791	Community-Based Clinical Dentistry 1	0.1-5
DSCD 7797	Special Care Clinic B	0.1-5
DSEN 7033	Clinical Endodontics 3	0.1-5
DSFD 7033	Clinical Fixed Prosthodontics 4	0.1-5
DSOD 7033	Clinical Oral Diagnosis 4	0.1-5
DSOP 7033	Clinical Operative Dentistry 4	0.1-5
DSPD 7033	Clinical Pediatric Dentistry 3	0.1-5
DSPE 7033	Clinical Periodontics 4	0.1-5
DSRE 7721	Comprehensive Patient Care Clinic D	0.1-5
DSRP 7033	Clinical Removable Prosthodontics 4	0.1-5
<b>Hours</b>		<b>0.99999999999999-50</b>
<b>Total Hours</b>		<b>6.300000000000025-295</b>

## Year 4

At the beginning of their fourth year, students take the National Board Dental Examination Part II which tests their clinical knowledge of endodontics, operative dentistry, oral and maxillofacial surgery, pain control, oral diagnosis, orthodontics, pediatric dentistry, patient management, periodontics, pharmacology and prosthodontics. Students continue to develop their clinical and practical dental skills by providing comprehensive patient care in the dental clinic. Advanced courses in implant dentistry, restorative dentistry, treatment planning, cariology, dental ethics and jurisprudence, endodontics and forensic dentistry are taken to further prepare students to become licensed dental professionals. All students also participate in the Advanced Clinical Training and Service (ACTS) program (<https://dental.cuanschutz.edu/prospective-students/programs-of-study/doctor-of-dental-surgery/curriculum/acts-program/>) and provide quality dental care to underserved communities in 30 clinics across the state. At the end of spring of their fourth year, students are fully prepared to take regional or state examinations to obtain dental licensure.

Course	Title	Hours
<b>Year 4</b>		
<b>Fall</b>		
DSCD 8892	Community-Based Clinical Dentistry 2	0.1-10
DSCD 8896	Special Care Clinic C	0.1-5
DSEN 8011	Clinical Endodontics 4	0.1-5
DSFD 8011	Clinical Fixed Prosthodontics 5	0.1-5
DSFD 8861	Advanced Implant Prosthodontic Seminar	0.1-5
DSOD 8010	Clinical Oral Radiology	0.1-5
DSOD 8011	Clinical Oral Diagnosis 5	0.1-5
DSOP 8011	Clinical Operative Dentistry 5	0.1-5
DSOS 8011	Clinical Oral Maxillofacial Surgery 1	0.1-5
DSPE 8011	Clinical Periodontics 5	0.1-5
DSRE 8806	Critical Appraisal of Translational Literature II	0.1-5
DSRE 8810	Restorative Dentistry Advanced Clinical Training Service Seminar	0.1-5
DSRE 8817	Comprehensive Patient Care Clinic E	0.1-5
DSRE 8945	Treatment Planning and Case Presentation	0.1-5
DSRP 8011	Clinical Removable Prosthodontics 5	0.1-5
DSSD 8011	Clinical Emergencies 1	0.1-5
DSAD 8847	Comprehensive Patient Care Clinic H	11
<b>Hours</b>		<b>12.6-96</b>
<b>Spring</b>		
DSCD 8812	Dental Ethics and Jurisprudence	0.1-5
DSCD 8822	Practice Management	0.1-5

DSCD 8893	Community-Based Clinical Dentistry 3	0.1-10
DSEN 8022	Clinical Endodontics 5	0.1-5
DSFD 8022	Clinical Fixed Prosthodontics 6	0.1-5
DSOD 8022	Clinical Oral Diagnosis 6	0.1-5
DSOP 8022	Clinical Operative Dentistry 6	0.1-5
DSPE 8022	Clinical Periodontics 6	0.1-5
DSRE 8827	Comprehensive Patient Care Clinic F	0.1-13
DSRE 8946	Treatment Planning and Case Presentation 4	0.1-5
DSRP 8022	Clinical Removable Prosthodontics 6	0.1-5
<b>Hours</b>		<b>1.0999999999999999-68</b>
<b>Total Hours</b>		<b>13.7-164</b>

**Graduation from the University of Colorado School of Dental Medicine is contingent upon:**

- Completion of all required courses with a minimum cumulative GPA of 2.30
- Fulfillment of all legal and financial obligations to the University
- Successful completion of the National Board Dental Examinations Part I and Part II
- Removal of probationary status if on academic probation. In the situation where a student is placed on academic probation at the end of his/her last semester of their program, the student is given the opportunity to rectify academic deficiency/deficiencies needed to remove the probationary status. This may be accomplished by performing additional coursework as dictated by course director(s) and as approved by the SPC to allow the granting of a higher 11 grade in select courses as needed to remove the student from academic probation. This may result in a lengthening of their academic program and a delay in their graduation from the SDM
- Recommendation for the degree by vote of the Faculty (Competency Review Board) of the University of Colorado School of Dental Medicine

The University of Colorado School of Dental Medicine, in collaboration with the University of Colorado Denver, offers a one-year intensive post-baccalaureate (post-bac) program. The post-bac program is designed to prepare students for dental school and ease the academic stress of the first year of the dental curriculum.

The post-bac program concentrates on the sciences and the significance of manual dexterity. It is specifically designed to help students improve and strengthen their academic credentials, enhance their test-taking skills, and develop more effective learning strategies.

Students who complete this program and requirements will be given preferential application status for entrance into the School of Dental Medicine.

Post-bac students can expect:

- A mentorship program with the School of Dental Medicine admissions and student affairs staff, faculty members and students;
- A full year of science course work through the University of Colorado – Denver;
- A hand skills development workshop; and
- An intensive Dental Admissions Test review course.

To be admitted into CU SDM, students must meet all post-bac requirements, which include a 3.5 or higher GPA and meet all the requirements for dental school.

If a prospective student is granted an interview, the prospective student must be available in person or via Zoom. Students are expected to meet the responsibility of the Post-Bac program fee while in Colorado including, but not limited to, tuition fees and living expenses.

Determine program eligibility by reviewing the comprehensive Application Checklist. ([https://www.ucdenver.edu/docs/librariesprovider253/prospective-student-uploads/post-bac-admissions-checklist.pdf?sfvrsn=ec58d7b9\\_2](https://www.ucdenver.edu/docs/librariesprovider253/prospective-student-uploads/post-bac-admissions-checklist.pdf?sfvrsn=ec58d7b9_2))

Learn more about what a candidate should expect and the completion requirements for the Post-Bac program ([https://www.ucdenver.edu/docs/librariesprovider253/prospective-student-uploads/post-bac-completion-requirements.pdf?sfvrsn=f758d7b9\\_2](https://www.ucdenver.edu/docs/librariesprovider253/prospective-student-uploads/post-bac-completion-requirements.pdf?sfvrsn=f758d7b9_2)).

**Questions?**

Please contact [sdmdiversity@ucdenver.edu](mailto:sdmdiversity@ucdenver.edu).

**Critical Thinking**

- Evaluate and integrate emerging trends in health care
- Utilize critical thinking to evaluate and integrate best research outcomes with clinical expertise and patient values for evidence-based practice.

**Professionalism**

- Make professional decisions that satisfy legal, societal and ethical principles.
- Use self-evaluative skills to assess individual knowledge and abilities, to practice within the scope of one's competence and make appropriate professional referrals, and to identify areas of deficiency to correct through lifelong learning.
- Collaborate effectively with other health professionals to facilitate the provision of overall health care.

**Communication and Interpersonal Skills**

- Apply appropriate interpersonal and communication skills to create a humanistic environment.
- Communicate effectively with diverse patients and other health care providers to ensure appropriate, patient-centered patient treatment.

**Health Promotion**

- Provide prevention, intervention and educational strategies.
- Participate with dental team members and other health care professionals in the management and health promotion for all patients.
- Recognize and appreciate the need to contribute to the improvement of oral health beyond those served in traditional practice settings.

**Practice Management and Informatics**

- Evaluate and apply regulatory agency requirements for dental practices such as infection control, HIPAA and environmental and office safety programs
- Apply principles of risk management including informed consent
- Demonstrate effective business practices, financial management and human resource skills

**Patient Care****Assessment, Diagnosis and Treatment Planning**

- Perform an examination that collects biological, psychological, clinical, radiographic and other diagnostic/consultative information required to evaluate the health, oral conditions, needs, and expectations of patients of all ages.
- Recognize, diagnose and interpret normal and abnormal conditions of the orofacial complex (to include oral cancer), occlusal and temporomandibular disease, craniofacial growth and development that require monitoring, treatment or management.
- Develop, present and discuss individual sequenced treatment plans for patients of all ages consistent with patient's condition, interest, goals and capabilities.

**Establishment and Maintenance of a Healthy Oral Environment****Management of Emergency Situations**

- Anticipate, diagnose, and provide initial treatment and follow-up management for medical emergencies that may occur during dental treatment
- Recognize and manage dental emergencies to include acute pain, hemorrhage, trauma, and infection of the orofacial complex

**Control of Pain and Anxiety**

- Employ pharmacological agents and techniques to manage orofacial discomfort and psychological distress

**Periodontal Therapy**

- Diagnose, treatment plan, comprehensively treat, and maintain patients with periodontal disease in the primary, mixed, and permanent dentitions

**Endodontic Therapy**

- Diagnose and treat diseases of pulpal and periradicular origin in the primary, mixed, and permanent dentitions

**Surgical and Non-Surgical Therapies**

- Diagnose and treat conditions requiring reparative surgical procedures and non-surgical therapies on the hard and oral soft tissues

**Restorative/Prosthodontic Therapy**

- Provide single or multiple tooth restorations, with appropriate fixed or removable techniques, to restore anatomic form, function, and esthetics to patients of all ages.
- Continually analyze the outcomes of patient treatment to improve patient care.

## Orthodontics (Certificate)

The Graduate Orthodontics Program was established in 2004 and is a full-time program requiring 30 months in active residency beginning in August each year. The orthodontics program provides a balanced education with a strong emphasis in clinical experience where residents are exposed to the most current techniques and practices in the field. Upon completion of the program, the resident is awarded a Certificate in Orthodontics and a Master of Science in Dentistry.

The program will include extensive exposure to a multitude of cases, treatment philosophies, and practice management experiences. Residents will have the opportunity to start over 45 cases using various appliances and systems. Throughout the program, residents can expect to treat Invisalign, SLX Clear aligner, Lingual as well as a large number of Cleft Lip and Palate/ Craniofacial Anomaly cases.

The University of Colorado School of Dental Medicine Graduate Orthodontics Program accepts 15 residents each year from a variety of backgrounds and life experiences. We use a holistic review process when considering applicants by reviewing a number of factors with an emphasis on academic achievement, service, research, class rank and an invitation only interview.

## Ideal Applicant

- Dental school GPA of 3.5 or higher
- GRE scores (top quartile)
- Class rank (top 30%)
- Research experience is highly desirable
- Record of service activities
- Excellent letters of recommendation (A strong recommendation from the applicant's department of orthodontics is preferable)
- **Advanced Dental Admission Test (ADAT)** - While not required, applicants may submit their ADAT score to supplement their application

## Prerequisite Requirements

- Graduate from an ADA accredited dental school in the United States or Canada with a DDS or DMD degree
- Pass the National Board Dental Examinations (NBDE) Part I. Applicant must pass the NBDE Part II before enrollment into the program

## Application Requirements

To apply, please apply using **ONE** of the following methods:

### PASS Application-

Applicants may apply by submitting a portion of the application requirements via the web-based application, Postdoctoral Application Support Service (PASS) (<https://pass.liaisoncas.com/applicant-ux/#/login>).

The PASS application includes:

- Personal essay
- Academic Performance Evaluation Form
- Three (3) letters of recommendation

- Official transcripts from all colleges/universities attended
- National Board Dental Examination scores

The remaining items must be submitted to the address below to complete your application:

- CU Orthodontics Supplemental Application ([https://dental.cuanschutz.edu/docs/librariesprovider253/ortho-students/cu-orthodontics-supplemental-application\\_2020.pdf?sfvrsn=bdeea5b9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/ortho-students/cu-orthodontics-supplemental-application_2020.pdf?sfvrsn=bdeea5b9_2))
- Official GRE scores (Institutional code: 7209)
- \$75 application fee payable to "CU Orthodontics"
- Small photo (passport size)

OR

### CU Orthodontics Application

Applicants may apply by submitting all the following required items directly to the CU Orthodontics program at the address below:

- Completed CU Orthodontics Application ([https://dental.cuanschutz.edu/docs/librariesprovider253/ortho-students/ortho-application-2020-full-form-layout.pdf?sfvrsn=9ce8a5b9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/ortho-students/ortho-application-2020-full-form-layout.pdf?sfvrsn=9ce8a5b9_2)) includes the following forms:
  - Personal essay
  - Academic Performance Evaluation Form
  - Three (3) letters of recommendation that can be sent via email ([Orthoadmissions@ucdenver.edu](mailto:Orthoadmissions@ucdenver.edu)) from the person recommending you.
  - Official transcripts from all colleges/universities attended
- National Board Dental Examination scores
- Official GRE scores (Institutional code: 7209)
- \$75 application fee payable to "CU Orthodontics"
- Small photo (passport size)

### Mailing Address:

University of Colorado School of Dental Medicine  
Graduate Orthodontics Program Application  
13065 East 17th Avenue  
Mail Stop F849  
Aurora, CO 80045

## Nondiscrimination Policy

The CU School of Dental Medicine Graduate Orthodontics Program does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, or political philosophy in admission and access to, and treatment and employment in, its educational programs and activities. Individuals of all ethnic minority groups are encouraged to apply for admission.

The 30-month residency program will be covered according to the following manner:

- Didactic - 26%
- Clinical - 58%
- Research -13%
- Teaching -3%

*Clinical emphasis is placed on the use of contemporary edgewise appliances in conjunction with functional and other orthopedic appliances to treat children, adolescents and adults using both routine orthodontics and orthognathic surgery. Participation with craniofacial anomaly patients and boards is required.*

## First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
DSOR 5101	Orthodontics 101 - Boot Camp	4.2
DSOR 5102	Dentofacial Growth and Development 1	1.8
DSOR 5103	Diagnosis and Treatment Planning 1	1.8
DSOR 5104	Biomechanics 1	3.5
DSOR 5105	Research Methodology and Biostatistics 1	1.8
DSOR 5107	Treatment Planning 1	3.5
DSOR 5108	Current Literature Review 1	0.9
DSOR 5111	History of Orthodontics & Dentofacial Orthopedics	0.9
DSOR 5841	Research 1 (Independent Study)	0.9
DSOR 5931	Clinical Orthodontics 1	6.8
<b>Hours</b>		<b>26.099999999999998</b>
<b>Total Hours</b>		<b>26.099999999999998</b>

Course	Title	Hours
<b>First Year</b>		
<b>Spring</b>		
DSOR 5202	Dentofacial Growth and Development 2	2.5
DSOR 5203	Diagnosis and Treatment Planning 2	2.5
DSOR 5204	Biomechanics 2	3.8
DSOR 5205	Research Methodology & Biostatistics 2	2.5
DSOR 5207	Treatment Planning 2	5
DSOR 5208	Current Literature Review 2	1.3
DSOR 5321	Orthognathic Surgical Treatment	2.5
DSOR 5842	Research 2	0.8
DSOR 5932	Clinical Orthodontics 2	9.5
<b>Hours</b>		<b>30.400000000000002</b>
<b>Total Hours</b>		<b>30.400000000000002</b>

Course	Title	Hours
<b>First Year</b>		
<b>Summer</b>		
DSOR 5211	Treatment in Preadolescent Children	1.8
DSOR 5304	Biomechanics 3	1.8
DSOR 5302	Implants in the Orthodontic Patient	1
DSOR 5307	Treatment Planning 3	3.5
DSOR 5331	Management of the TMJ Patient	1.8
DSOR 5341	Fundamentals of Teaching	0.9
DSOR 5344	Advanced Radiology and Radiographic Interpretation	1.8
DSOR 5843	Research 3	5

DSOR 5933	Clinical Orthodontics 3	6.4
<b>Hours</b>		<b>24</b>
<b>Total Hours</b>		<b>24</b>

## Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
DSOR 6107	Treatment Planning 4	4
DSOR 6108	Current Literature Review 4	1
DSOR 6111	Periodontic/Orthodontic Treatment	1
DSOR 6201	Ethics & Practice Management	2
DSOR 6206	Dent/Craniofacial Anomalies	1
DSOR 6844	Research 4	6.5
DSOR 6934	Clinical Orthodontics 4	8.1
<b>Hours</b>		<b>23.6</b>
<b>Total Hours</b>		<b>23.6</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Spring</b>		
DSOR 8317	Advanced Diagnosis of Oral Lesions	0.08
DSOR 6207	Treatment Planning 5	5
DSOR 6208	Current Literature Review 5	1.3
DSOR 6209	Surgical Anatomy & Osteology	1.1
DSOR 6845	Research 5	2.4
DSOR 6935	Clinical Orthodontics 5	11.1
DSOR 6936	Review for American Board Examination	1.2
<b>Hours</b>		<b>22.18</b>
<b>Total Hours</b>		<b>22.18</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Summer</b>		
DSOR 7107	Treatment Planning 6	3.5
DSOR 7108	Current Literature Review 6	0.9
DSOR 7112	Orthodontic Clinical Teaching 1	3.5
DSOR 7846	Research 6	5
DSOR 7936	Clinical Orthodontics 6	7.6
DSOR 7938	Clinical Problems 1	0.9
<b>Hours</b>		<b>21.4</b>
<b>Total Hours</b>		<b>21.4</b>

## Third Year

Course	Title	Hours
<b>Third Year</b>		
<b>Fall</b>		
DSOR 7207	Treatment Planning 7	4
DSOR 7208	Current Literature Review 7	1
DSOR 7212	Orthodontic Clinical Teaching 2	4
DSOR 7847	Research 7	5
DSOR 7937	Clinical Orthodontics 7	8.7
DSOR 7939	Clinical Problems 2	1



DSOR 7940	Orthodontic Retention I	3
<b>Hours</b>		<b>26.7</b>
<b>Total Hours</b>		<b>26.7</b>
<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Third Year</b>		
<b>Spring</b>		
DSOR 7307	Treatment Planning 8	2
DSOR 7300	Current Literature Review 8	0.5
DSOR 7312	Orthodontic Clinical Teaching 3	0.3
DSOR 7848	Research 8	0.6
DSOR 7934	Clinical Orthodontics 8	4.7
DSOR 7941	Orthodontic Retention II	2
<b>Hours</b>		<b>10.1</b>
<b>Total Hours</b>		<b>10.1</b>

## Requirements for Graduation

- Attendance of all classes, clinics, and assigned meetings
- Passing all classes and maintaining an overall B average or above
- Successful completion of the Proficiency Examinations
- Demonstration of clinical proficiency in orthodontics
- Completion of a research project and committee approval/defense of a publishable manuscript in AJODO format
- Successful completion of all required courses.
- Passing Part II (written examination) of the American Board of Orthodontics during the 2nd year.

### Program Goal 1

- Provide patient-based clinical care to help residents gain proficiency in orthodontics and deliver high-quality care to patients

#### Objectives:

- Overall Provide a diverse clinical experience similar to normal clinical practice
- Gather an appropriate and complete data base on each patient to provide a strong foundation for diagnosis, treatment planning, treatment consultation, treatment and retention of the patient
- Utilize a problem-based diagnostic and treatment planning strategy for all patients
- Utilize craniofacial growth and development knowledge in planning and carrying out patient treatment
- Integrate relevant biological, clinical and behavioral science into patient treatment
- Utilize current biomechanical and biomaterial techniques and strategies in patient care
- Utilize interdisciplinary consultation and care when appropriate
- Apply the principles of infection control and environmental safety to patient care and clinical operations

### Program Goal 2

- Provide residents with broad-based didactics and a strong basis for continued learning and clinical practice

#### Objectives:

- Use and understand basic scientific principles
- Provide sufficient supporting knowledge to allow residents to appropriately evaluate the literature and interact knowledgeably with other dental specialists
- Provide appropriate knowledge on business, legal and ethical issues to aid the student in managing an orthodontic practice

### Program Goal 3

- Provide residents the foundation to critically evaluate and conduct research

#### Objectives:

- Provide familiarity with research design and statistical analysis
- Formulate a proposal, carry out a research project, analyze results and write the results in a publishable format
- Submit a publishable manuscript to a journal as a contribution to the clinical and scientific literature
- Develop characteristics of a life-long learner

### Program Goal 4

- Encourage service and socially responsible behavior

#### Objectives:

- Participate in organized dentistry initially by attending local and national meetings
- Participate in craniofacial deformity and underprivileged patient clinics
- Educate non-orthodontists concerning orthodontics

## Periodontics (Certificate)

### Overview

The Graduate Periodontics Program begins July 1st of each year and is of 36 months duration. Upon successful completion of the program, the resident is awarded a Certificate in Periodontics and is eligible to take the American Board of Periodontology examination. A Master of Science in Dentistry degree is a requirement of the program, and residents are prepared to defend a Master's Thesis.

The program is planned to be multifaceted and to utilize the extensive facilities and outstanding personnel of the University of Colorado to provide:

- A strong foundation in the basic sciences, including surgical anatomy, cell biology, biochemistry, immunology, research methodology, and others.
- Clinical science courses that include occlusion, oral medicine, oral pathology, dental implantology, interdisciplinary treatment planning, and others.
- An extensive review of the periodontal literature to provide the basis for understanding current philosophies of therapy and to establish a scientific basis for formulating comprehensive treatment plans.
- Exposure to a wide range of periodontal diagnoses requiring a variety of therapeutic procedures. Residents are encouraged to utilize a variety of materials and clinical techniques as long as there is evidenced-based research to support their clinical decision-making.

- Research opportunities in either basic science or clinical areas to enable the resident to accomplish a meaningful original research project.
- Some experience in a hospital environment at University Hospital on the Anschutz Medical Campus, to support conscious sedation training.
- Teaching experience in both the classroom and clinic to communicate those principles and skills acquired during training.

## Admission Requirements

The University of Colorado Graduate Periodontics Program **DOES NOT** participate in ADEA/PASS or MATCH Programs. To apply, please follow the guidelines below.

The number of applicants accepted varies each year based upon positions available and Commission on Dental Accreditation limitations. Candidates should possess strong academic credentials. The application cycle opens on March 1st. Applicants must submit a completed application by July 1st in order to be considered for admission for the next year. The application process is forever evolving during this time and you will be notified after July 1st of the next steps. Upon acceptance, a \$3,000 deposit is required to hold your position. This deposit will be applied toward tuition.

Please note at this time our program cannot provide externships. Once your application is in, you will be assigned to a 2nd-year resident where specific questions can be answered.

### Application Requirements:

- Completed Postgraduate Periodontics Program Application ([https://dental.cuanschutz.edu/docs/librariesprovider253/prospective-student-uploads/perio-admissions-application-2022.pdf?sfvrsn=96a4b5ba\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/prospective-student-uploads/perio-admissions-application-2022.pdf?sfvrsn=96a4b5ba_2))
- Regents Questionnaire ([https://dental.cuanschutz.edu/docs/librariesprovider253/prospective-student-uploads/board-of-regents-questionnaire-2008-2009.pdf?sfvrsn=87ddc9b9\\_2](https://dental.cuanschutz.edu/docs/librariesprovider253/prospective-student-uploads/board-of-regents-questionnaire-2008-2009.pdf?sfvrsn=87ddc9b9_2))
- Official transcript in a sealed envelope from each college/university attended. International transcripts must be evaluated by an accredited foreign credentialing service. If your college/university can send official transcripts via email, these will be accepted going forward.
- National Board Examination scores (official report or certified copy), can be sent via email.
- Curriculum vitae
- Three (3) letters of recommendation. Recommendation letters can be sent via email ([alyssa.russo@cuanschutz.edu](mailto:alyssa.russo@cuanschutz.edu)) from the person who is recommending you.
- Application fee of \$50.00 paid online ([https://isis-cs.prod.cu.edu/psc/csprod/EMPLOYEE/HRMS/c/ CU\\_SELFSESRV\\_PUB.CU\\_APPFEE\\_PAYMENT.GBL? INSTITUTION=CUDEN](https://isis-cs.prod.cu.edu/psc/csprod/EMPLOYEE/HRMS/c/ CU_SELFSESRV_PUB.CU_APPFEE_PAYMENT.GBL? INSTITUTION=CUDEN)).

**More detailed information can be found on the** American Academy of Periodontology (AAP) website (<https://www.perio.org/education/CO-UCO.htm>).

### Additional Documents Required (If Applicable):

- Graduate Record Examination (GRE) scores: Required for all applicants who graduated from a dental school not accredited by the Commission on Dental Accreditation or schools that do not rank or

provide grades. GRE scores taken more than five (5) years before the application date will not be accepted. For GRE scores, please use the institution code 7209.

- Test of English as a Foreign Language (TOEFL) scores: Required for international applicants. TOEFL tests taken more than two (2) years prior to the date of application will not be accepted. For TOEFL scores, please use the institution code B785.
- Permanent Resident Green Card: If an applicant is now a permanent resident of the United States, the applicant must provide their full, legal name as it appears on immigration documents and a certified copy of the front and back of their federal Green Card.

### Applications can be sent via email

([alyssa.russo@cuanschutz.edu](mailto:alyssa.russo@cuanschutz.edu)) (preferred method) or mailed to:

University of Colorado School of Dental Medicine  
Postdoctoral Program in Periodontics  
Mail Stop F-850  
13065 E. 17th Avenue (For FED-EX/UPS, include Room 104D)  
Aurora, CO 80045

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***Applications will be updated in your file at the beginning of every month as long as we have your application in hand. We will reach out by the 5th of each month leading to the deadline to verify that your application is complete or if there is anything missing. If we do not have your application, no update will be given. Thank you for your patience on this.***

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Questions? Please contact Alyssa Russo, Residency Coordinator, at (303) 724-6243 or [alyssa.russo@cuanschutz.edu](mailto:alyssa.russo@cuanschutz.edu).

## Curriculum

Over the course of 36 months, residents' time is allocated in the following manner:

- Clinical – 62%
- Didactic - 34%
- Research – 3%
- Teaching – 1%

### Requirements for Graduation:

- Maintain a "B" (3.0 on a 4.0 scale) overall Grade Point Average (GPA)
- Successful completion of all required courses or their appropriate substitutes
- Attendance at all classes and clinics assigned
- Successful completion of exams
- Demonstrate clinical proficiency in Periodontics
- Be a Student Member of the American Academy of Periodontology
- Be a Student Member of the American Dental Association

## First Year

Course	Title	Hours
<b>First Year</b>		
<b>Summer</b>		
DPER 7100	Periodontics Specialty Clinic 1	0.1-11
DPER 7101	Periodontal Current Literature	0.1-11
DPER 7103	Periodontal Literature Review Seminar I	0.1-11
DPER 7111	Advanced Periodontal Concepts	0.1-11

DPER 7113	Oral Medicine and Clinical Diagnosis	0.1-11
DPER 7114	Physical Diagnosis	0.1-11
DPER 7115	Interdisciplinary Course 1A	0.1-11
DPER 7211	Pain Control & Sedation/Comprehensive Pain Management	0.1-11

<b>Hours</b>	<b>0.7999999999999999-88</b>
<b>Total Hours</b>	<b>0.7999999999999999-88</b>

Course	Title	Hours
First Year		
Fall		
DPER 7200	Periodontics Specialty Clinic 2	0.1-11
DPER 7201	Periodontics Current Literature 1A	0.1-11
DPER 7203	Periodontal Literature Review Seminar 1A	0.1-11
DPER 7204	Periodontal Case Presentations Seminar 1A	0.1-11
DPER 7210	Advanced Periodontal Biology	0.1-11
DPER 7212	Postgraduate Dental Implantology Seminar 1B	0.1-11
DPER 7215	Interdisciplinary Course 1B	0.1-11
DPER 7216	Pharmacology 1	0.1-11
DPER 7219	Dental and Medical Emergency Management	0.1-11
DPER 8120	Head and Neck Anatomy	0.1-11
DPER 7220	Research and Methodology and Biostatistics I	2.5
	Hours	3.5-112.5
	Total Hours	3.5-112.5

Course	Title	Hours
First Year		
Spring		
DPER 7300	Periodontics Specialty Clinic 3	0.1-11
DPER 7301	Periodontics Current Literature 1B	0.1-11
DPER 7303	Periodontal Literature Review Seminar 2	0.1-11
DPER 7304	Periodontal Case Presentations Seminar 1B	0.1-11
DPER 7305	Periodontal Research 1	0.1-11
DPER 7308	Ethics, Financial and Practice Management 1	0.1-11
DPER 7315	Interdisciplinary Course 1C	0.1-11
DPER 7316	Pharmacology II	0.1-11
DPER 7317	Implant Provisionalization for the Periodontal Resident	0.1-11
DPER 8106	Anesthesiology	0.1-11
DPER 7320	Research Methodology and Biostatistics 2	3
DPER 6209	Surgical Anatomy and Osteology	0.1-11
	Hours	4.1-124
	Total Hours	4.1-124

## Second Year

Course	Title	Hours
Second Year		
Summer		
DPER 8100	Periodontics Specialty Clinic 4	0.1-11
DPER 8101	Periodontal Current Literature 2	0.1-11
DPER 8102	Periodontal Literature Review Seminar 2	0.1-11
DPER 8105	Periodontal Research 2	0.1-11
DPER 8115	Interdisciplinary Course 2A	0.1-11
DPER 8116	Management of Orofacial Pain	0.1-11
DPER 8110	Advanced Radiology and Radiographic Interpretation	0.1-11
Hours		0.7-77
Total Hours		0.7-77

Course	Title	Hours
Second Year		
Fall		
DPER 8200	Periodontics Specialty Clinic 5	0.1-11
DPER 8201	Periodontal Current Literature 2A	0.1-11
DPER 8203	Periodontal Literature Review Seminar 3	0.1-11
DPER 8204	Periodontal Case Presentations Seminar 2A	0.1-11
DPER 8205	Periodontal Research 3	0.1-11
DPER 8215	Interdisciplinary Course 2B	0.1-11
DPER 8216	Pharmacology III	0.1-11
DPER 8219	Dental and Medical Emergency Management	0.1-11
DPER 8222	Periodontic/Orthodontic Treatment	0.1-11
Hours		0.8999999999999999-99
Total Hours		0.8999999999999999-99

Course	Title	Hours
Second Year		
Spring		
DPER 8300	Perio Specialty Clin 6	0.1-11
DPER 8301	Periodontics Current Literature 2B	0.1-11
DPER 8303	Perio Lit Rev Seminar 4	0.1-11
DPER 8304	Perio Case Pres Sem 2B	0.1-11
DPER 8305	Perio Research 4	0.1-11
DPER 8308	Ethics, Financial and Practice Management 2	0.1-11
DPER 8311	Adv Immu/ Microbiology	0.1-11
DPER 8315	Interdisciplinary Course 2C	0.1-11
DPER 8316	Pharmacology IV	0.1-11
DPER 8317	Advanced Oral & Maxillofacial Pathology for Periodonon	0.1-11
Hours		0.9999999999999999-110
Total Hours		0.9999999999999999-110

## Third Year

Course	Title	Hours
<b>Third Year</b>		
<b>Summer</b>		
DPER 9100	Perio Specialty Clin 7	0.1-11
DPER 9101	Periodontal Current Literature 3A	0.1-11
DPER 9102	Periodontal Literature Review Seminar 5	0.1-11
DPER 9105	Periodontal Research 5	0.1-11
DPER 9015	Interdisciplinary Course 3A	0.1-11
DPER 9017	Scientific Writing and Evaluation	0.1-11
<b>Hours</b>		<b>0.6-66</b>
<b>Total Hours</b>		<b>0.6-66</b>

Course	Title	Hours
<b>Third Year</b>		
<b>Fall</b>		
DPER 9200	Perio Specialty Clin 8	0.1-11
DPER 9201	Periodontal Current Literature 3B	0.1-11
DPER 9203	Periodontal Literature Review Seminar 6	0.1-11
DPER 9204	Perio Case Pres Sem 3A	0.1-11
DPER 9205	Periodontal Research 6	0.1-11
DPER 9215	Interdisciplinary Course 3B	0.1-11
DPER 9216	Pharmacology V	0.1-11
DPER 9219	Dental and Medical Emergency Management	0.1-11
<b>Hours</b>		<b>0.7999999999999999-88</b>
<b>Total Hours</b>		<b>0.7999999999999999-88</b>

Course	Title	Hours
<b>Third Year</b>		
<b>Spring</b>		
DPER 9300	Perio Specialty Clin 9	0.1-11
DPER 9301	Periodontal Current Literature 3C	0.1-11
DPER 9303	Periodontal Literature Review Seminar 7	0.1-11
DPER 9304	Perio Case Pres Sem 3B	0.1-11
DPER 9305	Periodontal Research 7	0.1-11
DPER 9308	Ethics, Financial and Practice Management 3	0.1-11
DPER 9315	Interdisciplinary Course 3C	0.1-11
DPER 9316	Pharmacology VI	0.1-11
<b>Hours</b>		<b>0.7999999999999999-88</b>
<b>Total Hours</b>		<b>0.7999999999999999-88</b>

## Certificate Requirements

### Requirements for Graduation:

- Maintain a "B" (3.0 on a 4.0 scale) overall Grade Point Average (GPA)
- Successful completion of all required courses or their appropriate substitutes
- Attendance at all classes and clinics assigned
- Successful completion of exams
- Demonstrate clinical proficiency in Periodontics

- Be a Student Member of the American Academy of Periodontology
- Be a Student Member of the American Dental Association

## Student Learning Outcomes

### Mission Statement:

The primary objective of the Periodontics Residency Program is to produce outstanding clinical periodontists who engage in a broad scope of periodontal procedures and who are capable of engaging in research, teaching and leadership activities. We hope to produce the most well trained clinical periodontists coming out of residency programs in the U.S., so that they can offer the highest quality of care to their patients, provide for their families, and give back to the community and the profession.

This is accomplished by focusing on the following goals and objectives:

### Goal 1

- Provide comprehensive training that assures resident knowledge and proficiency in periodontics.

### Objectives:

- Demonstrate foundational didactic knowledge and insight in the biomedical sciences.
- Demonstrate a high level of clinical skill in a comprehensive variety of periodontal and dental implant treatment modalities.
- Demonstrate knowledge of classic and current periodontal and Implant literature; including interpretation, analysis, and critical evaluation.
- Demonstrate knowledge of systemic/medical considerations impacting patient periodontal status and provision of care.
- Demonstrate knowledge of pathogenesis/management of oral mucosal pathoses.
- Demonstrate knowledge of and clinical skills in multidisciplinary patient care (prosthodontic, orthodontics, TMD, endodontics).
- Demonstrate knowledge of and clinical skills in methods of adjunctive anxiety and pain control including conscious sedation using intravenous, oral and inhalation routes. Emphasis will be placed on IV sedation.
- Prepare residents for practice following graduation by introduction to principles of practice management.
- Demonstrate professional/ethical behavior in all aspects of residency training and patient care.

### Goal 2

- Provide instructional skills that will enable residents to effectively communicate/transmit knowledge of periodontics and related subjects.

### Objectives:

- Demonstrate knowledge of organizing, leading and presenting lectures, case presentations and seminars.
- Demonstrate ability to teach clinical periodontal evaluation, diagnosis and therapy to other oral health care providers.

### Goal 3

- Prepare residents for specialty board certification.

**Objectives:**

- Successfully challenge the AAP In-Service Examination.
- Successfully evaluate case scenarios using ABP guidelines.
- Obtain specialty board certification by program graduates.

**Goal 4**

- Create an atmosphere of scientific inquiry and scholarship.

**Objectives:**

- Develop an understanding of the scientific method, hypothesis testing and use of evidence-based methodologies. Demonstrate active engagement in research leading to Master of Science of Dentistry degree by the conclusion of residency.
- Present research findings at local/national levels. Publish in scientific journals.

**Goal 5**

- Maintain rigorous evaluation of the residency program.

**Objectives:**

- Evaluation of the residency program by program graduates.
- Evaluation of faculty effectiveness by residents and Program Director.
- Provide frequent formal resident feedback.
- Evaluate goals, objectives and outcomes of the program annually.

## School of Medicine

### Contact

Fitzsimons Building  
13001 E. 17th Place  
Campus Box C290  
Aurora, CO  
Phone: 303.724.5375  
Web: <https://medschool.cuanschutz.edu/>

### About Us

#### Advancing Science, Improving Care

The University of Colorado School of Medicine is located on the Anschutz Medical Campus, one of the nation's newest health care campuses. Innovative architecture fosters collaboration among students, researchers and clinicians and extends to two world-class campus hospitals: University of Colorado Hospital and Children's Hospital Colorado.

**The Facts**

- More than 2 million adult and pediatric patients a year served
- Industry partners located in the adjacent Fitzsimons Innovation Community
- Campus site totals 256 acres of land including clinical, research, and education zones
- A model across the nation for the successful redevelopment of a decommissioned U.S. Army facility

**The Name**

In 2006, in recognition of a series of gifts from The Anschutz Foundation, the University of Colorado announced that its Aurora campus would be named the Anschutz Medical Campus. In 2018, the foundation donated

\$120 million to the campus, bringing the foundation's total investment in the medical campus to nearly \$300 million since 2000.

**The Mission**

- Education - through the provision of educational programs to medical students, allied health students, graduate students and house staff, practicing health professionals, and the public at large;
- Research - through the development of new knowledge in the basic and clinical sciences, as well as in health policy and health care education;
- Patient Care - through state-of-the-art clinical programs which reflect the unique educational environment of the University, as well as the needs of the patients it serves and,
- Community Service - through sharing the School's expertise and knowledge to enhance the broader community, including our affiliated institutions, other healthcare professionals, alumni, and other colleagues, and citizens of the state.

- Anesthesiology (MS) (p. 241)
- Medicine (MD) (p. 249)
- Office of Research Education (p. 311)
  - Biomedical Sciences (p. 311)
  - Cancer Biology (PhD) (p. 312)
  - Cell Biology, Stem Cells & Development (PhD) (p. 315)
  - Computational Bioscience (PhD) (p. 318)
  - Human Medical Genetics & Genomics (PhD) (p. 320)
  - Immunology (PhD) (p. 323)
  - Integrated Physiology (PhD) (p. 326)
  - Medical Scientist Training Program (MD/PhD) (p. 328)
  - Microbiology (PhD) (p. 338)
  - Molecular Biology (PhD) (p. 341)
  - Neuroscience (PhD) (p. 343)
  - Pharmacology (PhD) (p. 346)
  - Rehabilitation Science (PhD) (p. 348)
  - Structural Biology & Biochemistry (PhD) (p. 351)
- Physical Therapy (DPT) (p. 354)
- Physician Assistant Studies (MPAS) (p. 399)

## Anesthesiology (MS)

**Contact****University of Colorado Anesthesiologist Assistant Program**

12631 E. 17th Avenue, Suite 2017  
Mailstop 8202  
Aurora, CO 80045

Phone: 303-724-1764 or 303-724-0197  
Fax: 303-724-1761  
Email: [AAPProgram@cuanschutz.edu](mailto:AAPProgram@cuanschutz.edu)

**Overview**

The University of Colorado Anesthesiologist Assistant Program is a graduate medical education program in the University of Colorado School of Medicine. The Program accepts qualified individuals who desire to undertake rigorous didactic and clinical education in order to become knowledgeable, skilled anesthetists. Applicants must complete a baccalaureate degree in any major field of study from an accredited



institution, including above average performance (letter grade of "B-" or higher) in courses required in a premedical curriculum (refer to required courses in the Admissions section). All prerequisite courses must be completed before the program's start date.

Individuals who successfully complete this program are awarded a Master of Science Degree in Anesthesiology by the University of Colorado. In February, June or October of their senior year, students take the National Certifying Examination for Anesthesiologist Assistants. Following graduation and successful completion of the Certifying Examination, graduates can become integral anesthetist members of an anesthesia care team practice lead by an anesthesiologist.

The University of Colorado Anesthesiologist Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org)) upon the recommendation of the Accreditation Review Committee for the Anesthesiologist Assistant (ARC-AA).

#### Commission on Accreditation of Allied Health Education Programs

25400 U.S. Highway 19 North, Suite 158  
Clearwater, FL 33763  
Phone: 727-210-2350  
[www.caahep.org](https://www.caahep.org/) (<https://www.caahep.org/>)

#### Admission Requirements

### Academic Requirements

In order to enter the Master of Science Program in Anesthesiology, students will need:

- A bachelor's degree from an accredited institution
- An MCAT score attained within 5 years of applying to the program
- Completion of the prerequisite courses noted below
- A minimum of 8 hours of anesthetist shadowing (Applicants are encouraged to fulfill as many hours as possible)
- Background Check administered through the purchase of **package code UF28** on CastleBranch.com (<https://discover.castlebranch.com/>)
- A CASPer online assessment (**see Application Process page**)

### Prerequisite Courses

Documentation that each of the prerequisites listed below has been completed, with a grade of B-minus (2.7) or higher. Substitutions are NOT permitted, and survey courses for non-science majors are NOT acceptable. For those courses that have been repeated, the highest grade will be recognized. We accept courses taken at a four year institution, community college or online as long as they are from an accredited institution. We **do not** accept home lab kits as part of any course that requires lab.

The prerequisites must be completed within 7 years of the application deadline; however, if a student takes the MCAT and receives a score of 25 or higher (or above the 45th Percentile on the new MCAT) and has been clinically active in a health profession since completing your prerequisites, the 7 year requirement for prerequisites will be waived. (Call or email the office to confirm.)

- **English:** 1 semester (7 year window DOES NOT APPLY)
- **General Biology with Lab:** 2 semesters total

- General Biology I with lab (1 semester)
- General Biology II with lab (1 semester)
- **General Chemistry with Lab:** 2 semesters total
  - General Chemistry I with lab (1 semester)
  - General Chemistry II with lab (1 semester)
- **Organic Chemistry with Lab:** 2 semesters total
  - Organic Chemistry I with lab (1 semester)
  - Organic Chemistry II with lab (1 semester)
- **General Physics with Lab:** 2 semesters total (trigonometry or calculus based is preferred)
  - General Physics I with lab (1 semester)
  - General Physics II with lab (1 semester)
- **Biochemistry:** 1 semester
- **Statistics:** 1 semester
- **Human Anatomy and Physiology:** 1 semester of combined A&P or 1 semester each of Human Anatomy and Human Physiology (Courses in vertebrate embryology and developmental anatomy or mammalian physiology and embryology will NOT satisfy this requirement.)
- **Cellular and Molecular Biology:** Preferred, but not required

Advanced placement credit for prerequisite coursework that appear in official transcripts **may** be considered based on courses, scores, and student's overall undergraduate performance.

### Credit Conversion Policy

The University of Colorado uses a semester system; however, the university does accept quarter credit hours. Quarter credit hours are worth 2/3 of 1 semester hour. (One semester is approximately 4-5 quarter hours, and two semesters is 9 quarter hours.) Quarter credit hours may be rounded to the nearest whole number at the discretion of the admissions committee with consideration given to the course work and grade earned.

### Test Scores

Medical College Admission Test (MCAT) scores from within five years of the application cycle year. **The applicant must have MCAT score reports sent to CASAA.** A Score of 25 or higher on the MCAT will be considered competitive using the pre-2015 version. Scores in the 45th percentile or higher on the new MCAT2015 Exam will be considered competitive for current test-takers. **The GRE will NOT be accepted in place of the MCAT.**

### Shadowing Experience

Applicants to the program **must** be familiar with the practice of anesthesia, including related activities in the operating room. Individuals applying to the program must spend at least 8 hours with an anesthetist or an anesthesiologist in an operating room environment observing the conduct of anesthesia. Applicants who meet the minimum requirement will be considered for admission, but additional hours are **strongly suggested**. The applicant is encouraged to visit a local hospital and ask to speak with the anesthesiologist who directs the department of anesthesia.

The Documentation of Familiarity with Anesthesia Form ([https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-documentation-of-familiarity-with-anesthesia-practice-form.pdf?sfvrsn=acede4b9\\_2](https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-documentation-of-familiarity-with-anesthesia-practice-form.pdf?sfvrsn=acede4b9_2)) must be submitted as part of the

application to verify the number of hours that the applicant has spent in the OR.

## Background Check

A certified background check must be completed at the time of application. You will not be invited for an interview unless a background check from CastleBranch (<https://portal.castlebranch.com/UF28/>) has been completed. **Make sure that you ONLY purchase the UF28 Package Code (Background Check).** Do not purchase any of the other packages at this time (UF28a, UF28dt, UF28r).

## Foreign Graduate Admission

**No exemptions** will be made for required course work regardless of degrees or certification received outside the United States, experience, work background, or education. In addition to the General Admission Requirements (above), the applicant who has graduated from a college or university outside of the United States regardless of United States' residency status must do the following (not necessary for United States Territories):

- Official transcripts of all undergraduate and graduate course work taken outside the United States must be submitted to the program, along with the report from a credentialing organization (e.g. **Educational Credential Evaluators, Incorporated**) demonstrating equivalency to a Bachelor's degree received at an American college or university, and evaluating the transcript course-by-course for equivalency to required prerequisites for admission to the Anesthesiologist Assistant Program. **This is the first step that you are responsible for.**
- A statement from a responsible person certifying that the applicant's financial resources are sufficient to meet necessary expenses (International Students only). Deficiencies in required course work must be made up by taking appropriate courses in a college or university in the United States.
- A statement from a qualified physician describing any emotional or physical illnesses suffered by applicant during the preceding five years, or certifying freedom from such illnesses (International Students only).
- A photocopy of the student's passport to provide proof of birth date and citizenship (students outside the United States who have not yet acquired a passport will need to submit a copy of their birth certificate).
- For all applicants residing in the United States at the time of application: a photocopy of the visa page contained within the student's passport, as well as a photocopy of the student's I/94 arrival departure record (both sides).
- For all applicants residing in the United States at the time of application in either F, M, or J non-immigrant classification: written confirmation of non-immigrant status at previous school attended before transferring to the University of Colorado Denver.
- Proof of health insurance. Students who do not possess health insurance upon applying to the University of Colorado must be prepared to purchase health insurance through an approved provider upon commencement of studies.
- If an international student is transferring from a college or university in the United States, the international Student Transfer Clearance Form is also required.

- All documentation must be submitted to the University of Colorado registration office 30 days prior to a term's registration date for acceptance for that term. The University reserves the right to update these admissions requirements; subject to current federal regulations concerning the enrollment of nonimmigrant alien students. The University of Colorado is authorized under federal law to admit non-immigrant alien students.

In addition to the General Admission Requirements (above), the applicant who has graduated from a college or university of a country for which English is not the primary language, regardless of United States residency status, must do the following:

Students must obtain minimum scores listed below for each section of the Test of English as a Foreign Language (TOEFL). Scores must be from an exam taken within 7 years of application to the program. The program must receive an official score report directly from Educational Testing Services, Princeton, NJ.

## Transfer Admission

As providers of anesthesiologist assistant profession training, the program's primary responsibility is to offer such training to any person who meets the admission requirements. However, program format and enrollment constraints usually do not permit acceptance of transfer applicants.

### Application Process

1. Create an applicant account on CASAA (<https://casaa.liaisoncas.com/applicant-ux/#/login>) (Centralized Application Service for Anesthesiologist Assistants).
2. Choose the **University of Colorado, Denver** from the list of programs.
3. Complete all four sections of the application (**Personal Information, Academic History, Supporting Information, and Program Materials**). The **Program Materials** section is specific to our program.
4. The references portion is called **Evaluations** and is located in the **Supporting Information** section. You are required to have a minimum of 3 evaluations. Once you have saved an electronic evaluation, an email request will automatically be sent to the evaluator on your behalf. Please advise your evaluator to look for this email in their inbox, as well as their spam or junk mail folder, as emails do occasionally get filtered out.
5. Please use updated transcripts to complete the online application. If a course is "In Progress" at the time of application, enter the letters **"IP"** for that course when entering Prerequisite Courses.
6. In the Program Materials section you will need to upload:
  - A **CV/Resume** (include any medical experience you may have)
  - Documentation of Familiarity with Anesthesia Form ([https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-documentation-of-familiarity-with-anesthesia-practice-form.pdf?sfvrsn=acede4b9\\_2](https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-documentation-of-familiarity-with-anesthesia-practice-form.pdf?sfvrsn=acede4b9_2))
    - upload under SHADOWING/HEALTHCARE HOURS
    - combine multiple forms into a single file
  - Documentation Concerning Technical Standards Form ([https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-technical-standards-form.pdf?sfvrsn=5aede4b9\\_2](https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-technical-standards-form.pdf?sfvrsn=5aede4b9_2))
    - upload under OTHER
  - Criminal Background Check Release Form (<https://www.ucdenver.edu/docs/librariesprovider54/education->

aa-program/background-check-release-form-on-website---castlebranch-5-3-19.pdf?sfvrsn=7dede4b9\_2)

- upload under OTHER

- Drug Screen Release Form ([https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-drug-testing-release-form.pdf?sfvrsn=d2eee4b9\\_2](https://www.ucdenver.edu/docs/librariesprovider54/education-aa-program/ucd-aa-program-drug-testing-release-form.pdf?sfvrsn=d2eee4b9_2))

- upload under OTHER

- Please note, you will be sending CASAA your official transcripts and MCAT score report from AAMC, not the Program Office. The Program Office will only need these items from you in the event that you are accepted into the Program.
- In addition to the CASAA application, applicants must complete the **CASPer online assessment**. Successful completion of CASPer is mandatory in order to maintain admission eligibility. Information regarding this mandatory assessment is below.

## The CASPer Test - Computer-Based Assessment for Sampling Personal Characteristics

CASPer is an online test which assesses for non-cognitive skills and interpersonal characteristics that we believe are important for successful students and graduates of our program, and will complement the other tools that we use for applicant screening. In implementing CASPer, we are trying to further enhance fairness and objectivity in our selection process.

In order to take CASPer, you will be responsible for securing access to a computer with audio capabilities, a webcam, and a reliable internet connection on your selected test date. CASPer can be taken practically anywhere that you can satisfy the aforementioned requirements. No exceptions will be provided for applicants unable to take CASPer online due to being located at sites where internet is not dependable due to technical or political factors.

Please go to [www.takeCASPer.com](https://takecasper.com/) (<https://takecasper.com/>) to sign up and reserve a test using your CASAA Applicant ID and a piece of government-issued photo ID. You will be provided with a limited number of testing dates and times. Please note that these are the only testing dates available for your CASPer test. There will be no additional tests scheduled. Please use an email address that you check regularly; there may be updates to the test schedule.

Please direct any inquiries on the test to [support@takecasper.com](mailto:support@takecasper.com). Alternatively, you may use the chat bubble in the bottom right hand corner of your screen on the [takecasper.com](https://takecasper.com) website.

The CASPer test is comprised of 12 sections of video and written scenarios. Following each scenario, you will be required to answer a set of probing questions under a time contract. The test typically takes between 75-90 minutes to complete. Each response is graded by a different rater, giving a very robust and reliable view of personal and professional characteristics important to our program. No studying is required for CASPer, although you may want to familiarize yourself with the test structure at [takeCASPer.com](https://takecasper.com) (<https://takecasper.com/>), and ensure you have a quiet environment to take the test.

CASPer test results are valid for one admissions cycle. Applicants who have already taken the test in previous years will need to re-take it.

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
ANMS 5000	Orientation to Anesthesia	1
ANMS 5001	Introduction to Clinical Anesthesia	2

ANMS 5005	Principles of Airway Management	2
ANMS 6801	MSA-1 Seminar 1	1
ANMS 5300	Applied Neurophysiology	2
ANMS 6701	Anesthesia Non-Technical Skills & Wellness I	1
ANMS 5009	Anesthesia Monitoring and Delivery Systems	4
ANMS 5006	Simulation and Skills Laboratory I	1
ANMS 5007	Fundamentals of Anatomy & Physiology for Anesthetists	4
ANMS 5008	Clinical Anesthesiology I	5
<b>Hours</b>		<b>23</b>
<b>Total Hours</b>		<b>23</b>

Course	Title	Hours
<b>First Year</b>		
<b>Spring</b>		
ANMS 5011	Anesthesia Principles and Practice I	2
ANMS 5013	Patient Monitoring II	2
ANMS 5016	Simulation and Skills Laboratory II	1
ANMS 5018	Clinical Anesthesiology II	5
ANMS 5021	Anesthesia Principles and Practice II	2
ANMS 5100	Cardiovascular Physiology	2
ANMS 5200	Pharmacology I	2
ANMS 5500	Liver, Endocrine, and Renal Physiology	2
ANMS 5007	Fundamentals of Anatomy & Physiology for Anesthetists	4
ANMS 6811	MSA-1 Seminar II	1
ANMS 6711	Anesthesia Non-Technical Skills & Wellness II	1
<b>Hours</b>		<b>24</b>
<b>Total Hours</b>		<b>24</b>

Course	Title	Hours
<b>First Year</b>		
<b>Summer</b>		
ANMS 5021	Anesthesia Principles and Practice II	2
ANMS 5013	Patient Monitoring II	2
ANMS 5400	Respiratory Physiology	2
ANMS 5002	Perioperative Medicine	2
ANMS 5210	Pharmacology II	2
ANMS 5501	Anesthesia and Co-Existing Diseases I	2
ANMS 5026	Simulation and Skills Laboratory III	1
ANMS 5028	Clinical Anesthesiology III	7.5
ANMS 6007	Applied Clinical Anatomy & Physiology for Anesthetists	2
ANMS 6821	MSA-1 Seminar III	1
<b>Hours</b>		<b>23.5</b>
<b>Total Hours</b>		<b>23.5</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
ANMS 6031	Anesthesia Principles and Practice III	2

ANMS 6110	Hepatic and Maternal-Fetal Physiology	2
ANMS 6220	Pharmacology III	2
ANMS 6511	Anesthesia and Co-Existing Diseases II	2
ANMS 6038	Clinical Anesthesiology IV	7.5
ANMS 6831	MSA-1 Seminar IV	1
<b>Hours</b>		<b>16.5</b>

**Total Hours 16.5**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Second Year</b>		
<b>Spring</b>		
ANMS 6311	Senior Seminar II	2
ANMS 6212	Senior Project II	1
ANMS 6058	Clinical Anesthesiology VI	10
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>13</b>

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Second Year</b>		
<b>Summer</b>		
ANMS 6311	Senior Seminar II	2
ANMS 6212	Senior Project II	1
ANMS 6058	Clinical Anesthesiology VI	10
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>13</b>

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Third Year</b>		
<b>Fall</b>		
ANMS 6321	Senior Seminar III	2
ANMS 6221	Senior Project III	1
ANMS 6068	Clinical Anesthesiology VII	10
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>13</b>

**ANMS 5000 - Orientation to Anesthesia (1 Credit)**  
Overview of basics of anesthesia to familiarize the student to basic competencies prior to their first clinical day. Topics covered include: medical terminology, pharmacology, anesthesia machine, basic monitoring, anesthesia care plans, drug dosing and calculations. Requisite: Must be admitted to MSA Program. Grading Basis: Letter Grade  
Typically Offered: Fall.

**ANMS 5001 - Introduction to Clinical Anesthesia (2 Credits)**  
Introduction to induction, maintenance, and emergence from anesthesia, history and types of anesthesia, universal precautions, infection control, OR layout, sterile fields and techniques, patient interaction, starting intravenous catheters and arterial cannulation, obtaining arterial blood samples, and applying ASA-standard monitors. Requisite: Must be admitted to MMS Program. Department Consent Required. Grading Basis: Letter Grade  
Typically Offered: Fall.

**ANMS 5002 - Perioperative Medicine (2 Credits)**  
A course on preoperative evaluation of the patient based on patient and surgery risk factors. Small group application of patient history and physical taking will also be utilized to allow students to apply concepts learned in class. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5005 - Principles of Airway Management (2 Credits)**  
Structure, function, pathophysiology, disease and management of the human airway. Basic and advanced principles of airway management, elective and emergent will be covered, including equipment and techniques. Examination, recognition, techniques and management involved in pediatric /adult difficult airways. Includes lab. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 5006 - Simulation and Skills Laboratory I (1 Credit)**  
Exploration of pulse oximetry, capnography, blood pressure monitoring systems, anesthesia delivery systems, breathing circuits, fresh gas flow effect, theory of dilutional methods of cardiac output monitoring, and relations between mean circulatory filling pressures and central venous pressure using anesthesia simulator. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 5007 - Fundamentals of Anatomy & Physiology for Anesthetists (4 Credits)**

Gross structures of the human body will be covered while integrating topographic and radiographic anatomy to stress the application and importance of clinical anatomy. This course will also develop the knowledge of the human anatomy necessary for the practice of anesthesiology. Requisite: Must be admitted to MMS Program

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5008 - Clinical Anesthesiology I (5 Credits)**  
Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 5009 - Anesthesia Monitoring and Delivery Systems (4 Credits)**  
Students will learn about basic monitors related to the practice of anesthesia, including ECG, NIBP, SpO<sub>2</sub>, respiratory gas analysis, temperature monitoring and other standard monitors. Students will be fluent in the interpretation of data from these basic monitors. They will also learn about anesthesia delivery systems including principles of ventilator function, breathing circuit configurations, and safety features of the operative setting including scavenging systems, machine checkout, and line isolation monitors.

Grading Basis: Letter Grade

Typically Offered: Fall.



**ANMS 5011 - Anesthesia Principles and Practice I (2 Credits)**

Principles involved in the formulation of anesthetic plans based upon data obtained during the preoperative evaluation, including the formulation and practices of different anesthetic plans and techniques as related to specific surgical procedures and pathophysiology. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5013 - Patient Monitoring II (2 Credits)**

More advanced monitoring including, BIS, SvO<sub>2</sub>, arterial and central pressure monitoring, basics of ultrasound, advanced ECG and ST analysis. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5016 - Simulation and Skills Laboratory II (1 Credit)**

Application of patient monitoring, clinical anesthesia practice and use of a high fidelity patient simulation environment will be covered. Students will utilize critical thinking skills to fully integrate didactic knowledge in patient care situations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5018 - Clinical Anesthesiology II (5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5021 - Anesthesia Principles and Practice II (2 Credits)**

Practical principles, application, and interpretation of various monitoring modalities including ECG, invasive and non-invasive blood pressure, oximetry, cardiac output, respiratory gas analysis, respiration, and instrumentation as they pertain to anesthesia practice. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5026 - Simulation and Skills Laboratory III (1 Credit)**

Application of patient monitoring, clinical anesthesia practice and use of a high fidelity patient simulation environment will be covered. Students will utilize critical thinking skills to fully integrate didactic knowledge in patient care situations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5028 - Clinical Anesthesiology III (7.5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia will be gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5100 - Cardiovascular Physiology (2 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5200 - Pharmacology I (2 Credits)**

General pharmacologic concept, membrane receptor, transport, biotransformation, pharmacokinetics and pharmacodynamics will be covered. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5210 - Pharmacology II (2 Credits)**

Covers drugs that include inhaled anesthetics, opioids, barbiturates, benzodiazepines, anticholinesterases and anticholinergics, neuromuscular blockers, adrenergic agonists and antagonists, non-steroidal anti-inflammatory drugs, antiarrhythmics, calcium channel blockers, diuretics, anticoagulants, antihistamines, and antimicrobials. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5300 - Applied Neurophysiology (2 Credits)**

Basic science instruction utilizing systems based approach on human physiology. Requisite: Must be admitted to MSA Program

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 5400 - Respiratory Physiology (2 Credits)**

Physiology and pathophysiology of disease associated with the pulmonary system. Specific instruction on common disease states, restrictive and obstructive pulmonary disorders, mechanical ventilation, arterial blood gas analysis and how these concepts apply to patient under anesthesia care will be covered. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5500 - Liver, Endocrine, and Renal Physiology (2 Credits)**

Physiology and pathophysiology of disease associated with the renal system. This includes specific instruction on common disease states, pre renal, intra renal and post renal failure. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5501 - Anesthesia and Co-Existing Diseases I (2 Credits)**

This course focuses on the anesthetic considerations that must be accounted for in patients with co-existing diseases due to physiological changes. Disease states include substance abuse, obesity, obstructive sleep apnea, asthma, COPD, etc. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.



**ANMS 6002 - Wellness and Professionalism (1 Credit)**

This is a one credit hour course. Class time will be alternated weekly between Wellness and Professionalism. The Wellness portion is designed to provide anesthesia students with the tools necessary to navigate the demanding nature of an intense medical graduate program. The professionalism portion is designed to provide anesthesiologist assistant students with the information necessary to develop as professionals as well as high performing anesthesiologist assistant students. Prerequisite: Must be admitted to MMS Program. Department consent required.

Grading Basis: Pass/Fail Only

Typically Offered: Fall.

**ANMS 6007 - Applied Clinical Anatomy & Physiology for Anesthetists (2 Credits)**

Gross structures of the human body will be covered while integrating topographic and radiographic anatomy to stress the application and importance of clinical anatomy. This course will also develop the knowledge of the human anatomy necessary for the practice of anesthesiology. Requisite: Must be admitted to MS-Anesthesiology Program

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6031 - Anesthesia Principles and Practice III (2 Credits)**

This is a course on improving system-based learning and practice.

Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6038 - Clinical Anesthesiology IV (7.5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6048 - Clinical Anesthesiology V (10 Credits)**

Clinical experience in required rotations through anesthesia subspecialty areas. Two-week and four-week interval rotations assigned, and will require call during some nights and weekends. Clinical practice is gained through one-on-one supervised instruction in operating room and other ancillary anesthetizing locations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6058 - Clinical Anesthesiology VI (10 Credits)**

Clinical experience in required rotations through subspecialty anesthesia areas. Rotations assigned in two-week and four-week intervals, and will require call during some nights and weekends. Clinical practice gained through one-on-one supervised instruction in operating room and other ancillary anesthetizing locations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6068 - Clinical Anesthesiology VII (10 Credits)**

Clinical experience in required rotations through anesthesia subspecialty areas. Rotations assigned in two-week and four-week intervals, and require call during some nights and weekends. Clinical practice gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6110 - Hepatic and Maternal-Fetal Physiology (2 Credits)**

Pathophysiology in a systems approach: cardiovascular, emphasizing hemodynamics, Starling forces, pulmonary responses, renal hemodynamics, temperature regulation, blood gases/pH, and maternal and fetal physiology. Emphasizes systems which affect evaluation and planning for anesthesia and systems affected by anesthesia administration. Prerequisite: Must be admitted to MMS Program.

Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6201 - Senior Project I (1 Credit)**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6212 - Senior Project II (1 Credit)**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6220 - Pharmacology III (2 Credits)**

This is a continuation of anesthesia specific pharmacology. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6221 - Senior Project III (1 Credit)**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6301 - Senior Seminar I (2 Credits)**

Each student will be required to research, prepare, and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6311 - Senior Seminar II (2 Credits)**

Each student will be required to research, prepare and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6321 - Senior Seminar III (2 Credits)**

Each student will be required to research, prepare and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6511 - Anesthesia and Co-Existing Diseases II (2 Credits)**

Continuation of Anesthesia and Co-Existing Diseases I. Focuses on anesthetic considerations that must be accounted for in patients with co-existing diseases due to physiological changes. Disease states include ischemic heart disease, valvular heart disease, systemic hypertension, pulmonary hypertension, coagulation disorders, etc. Prerequisites: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6701 - Anesthesia Non-Technical Skills & Wellness I (1 Credit)**

(ANTS) will examine and develop an understanding of medical errors, situational awareness, decision making, leadership, management of stress and fatigue. In addition this course will cover pedagogical principles in medical education and professionalism. All of which are integral in developing well-rounded and adaptable clinicians. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6711 - Anesthesia Non-Technical Skills & Wellness II (1 Credit)**

(ANTS) will examine and develop an understanding of medical errors, situational awareness, decision making, leadership, management of stress and fatigue. In addition this course will cover pedagogical principles in medical education and professionalism, all of which are integral in developing well-rounded and adaptable clinicians. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6801 - MSA-1 Seminar 1 (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6811 - MSA-1 Seminar II (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6821 - MSA-1 Seminar III (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6831 - MSA-1 Seminar IV (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program

Grading Basis: Letter Grade

Typically Offered: Fall.

**School of Medicine Deferment Policy**

Students can request an opportunity to defer in writing. Normally, deferrals are granted for unusual or mitigating circumstances that create challenges for a student to enter the Master of Science in Anesthesiology at that time. Also some "once in a lifetime opportunities" may arise, making a request to defer reasonable. Some examples include difficult family circumstances, birth of a child, participation in the Olympics, a Fulbright Scholarship opportunity, Teach for America, etc. Students should enter when they have achieved a high degree of readiness to engage fully in the Anesthesiologist Assistant Program. The AA Program Directors will decide whether to grant the deferral.

If a student is a non-resident at the time of initial acceptance, it is not possible to move to Colorado and during the year of deferral become a Colorado resident. There are certain requirements regarding deferral that must be met:

- Student must complete the majority of paperwork as if entering in the year for which they applied and pay the \$1000 deposit.
- For the actual year in which the student plans to enter, a CASAA application must be completed. If the student makes an application for deferral and it is granted, the student will be in a category of "deferred/delayed admission."
- Deferrals are for one year period only.
- The deadline for a requested deferral is May 1st of the year in which the student is scheduled to start. Deferrals after that date will not be accepted.

## Program Leadership

Vesna Jevtovic-Todorovic, MD, PhD, MBA (<https://som.ucdenver.edu/Profiles/Faculty/Profile/24033/>)

Chair, Department of Anesthesiology

Melanie Donnelly, MD, MPH, MBA (<https://som.ucdenver.edu/Profiles/Faculty/iframeProfile/22713/>)

Medical Director

Jillian Vitter, MD ([https://www.cudoctors.com/Find\\_A\\_Doctor/Profile/25689/](https://www.cudoctors.com/Find_A_Doctor/Profile/25689/))

Associate Medical Director

Ann-Michael Holland, CAA, MMSc (<https://som.ucdenver.edu/Profiles/Faculty/Profile/23030/>)

Program Director

Felix De Clercq, CAA (<https://som.ucdenver.edu/Profiles/Faculty/Profile/36398/>)

Associate Program Director

Erin Stewart, MD, MS ([https://www.cudoctors.com/Find\\_A\\_Doctor/Profile/29005/](https://www.cudoctors.com/Find_A_Doctor/Profile/29005/))

Medical Director of Simulation

Sam Lee, CAA, MSA ([https://www.cudoctors.com/Find\\_A\\_Doctor/Profile/25583/](https://www.cudoctors.com/Find_A_Doctor/Profile/25583/))

Director of Simulation

Amy Hebbert

Lead Program Coordinator

Aislinn Lederman

Program Coordinator

#### Student Learning Outcomes

The Master of Science in Anesthesiology/MSA Program prepares students to be competent entry-level Anesthesiologist Assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

## Competency Based Learning Objectives

### Domain I: Cognitive (Knowledge)

**Medical Knowledge** – Students will have a mastery of the practice of Anesthesiology and be conversant in its subspecialties.

**Systems-Based Practice** – Students will demonstrate an understanding of university-based anesthesiology practice, including its interactions with other specialties, both medical and surgical. Students will practice cost-effective health care and resource allocation through evidence-based medical practice that does not compromise quality of care.

### Domain II: Psychomotor (Skills)

By the end of the curriculum, the MSA students will have the psychomotor skills and demonstrate the proper technique of; IV placement, intubation with various airway devices, arterial and central line placement, and spinal and epidural placement.

Skills in these techniques will be established through:

## Medicine (MD)

### Doctor of Medicine (MD)

At the University of Colorado School of Medicine, we educate physicians who are curious, life-long learners with a commitment to serve the profession, our patients, and society.

**Entry Level Skills Mastery** – Students will be able to demonstrate a comprehensive knowledge of the practice of anesthesiology and its subspecialties through supervised clinical experiences and be able to perform as an entry-level anesthesiologist assistant.

**Practice-Based Learning & Improvement** – Students will be adept at gathering current information on their own, and will be able to judge the quality of this information as it pertains to their clinical milieu.

### Domain III: Affective (Behavior)

By the end of the curriculum the MSA students will be; consummate professionals, passionate members of the patient care team, life-long learners, and patient care quality advocates.

Students will develop these skills through:

1. **Patient Care** – Students will train to become compassionate, efficient, and effective CAAs that maintain a constant focus on patient safety.
2. **Interpersonal & Communications Skills** – Students will have the ability to communicate needs efficiently and clearly (both verbally and in writing) to anesthesiologists, surgeons, patients, patient families, peers and all perioperative staff.
3. **Professionalism** – Students will demonstrate the ability to interact professionally with the OR staff, and will maintain a professional image at all times, especially with respect to patients and their visiting family members.

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Upon completion of the M.S. in Anesthesiology/MSA Program, students will be able to:

1. Evaluate patient medical history
2. Perform a physical examination
3. Understand the risks related to surgery
4. Formulate a safe and cost-effective anesthetic plan based on medical history, physical examination and type of surgery
5. Have the knowledge base to understand patient physiology and pathophysiology, pharmacology related to anesthesia
6. Have the knowledge base to appropriately respond to changes of patient condition during surgery
7. Use electronic medical record appropriately
8. Create a preoperative evaluation, intraoperative chart and a postoperative note in electronic medical record
9. Will be able to perform sedation, regional and general anesthesia safely and cost-effectively

#### Vision

Our graduates will be physician leaders capable of transforming the health of diverse communities.

**Mission**

Through a longitudinally integrated curriculum, we aim to educate physician leaders who are curious, life-long learners with a commitment to serve the profession, our patients, and society.

**Values**

Leadership. Curiosity. Commitment.

**Leadership****Dean**

**John J. Reilly, Jr., MD**, Vice Chancellor for Health Affairs at CU Denver and Dean for School of Medicine

**Associate & Assistant Deans**

**Jennifer Adams, MD**, Assistant Dean, Clinical Core Curriculum

**Brenda Bucklin, MD**, Associate Dean for Continuing Medical Education and Professional Development

**Peter Buttrick, MD**, Senior Associate Dean for Academic Affairs

**Karen Chacko, MD**, Associate Dean, Clinical Outreach

**Amira del-Pino-Jones**, Assistant Dean for Student Affairs

**Jeff Druck, MD**, Assistant Dean for Student Affairs

**Brian Dwinnell, MD**, Associate Dean of Student Life

**Christina Finlayson**, Associate Dean, Clinical Affairs/CU Medicine Medical Director of Adult Health

**Thomas Flaig, MD**, Clinical Research Officer, Associate Dean for Clinical Research

**Anne Fuhlbrigge, MD**, Senior Associate Dean for Clinical Affairs

**Jeff J. Glasheen, MD**, Associate Dean, Quality and Safety Education

**Steven Lowenstein, MD, MPH**, Associate Dean for Faculty Affairs

**Carol Rumack, MD**, Associate Dean for Graduate Medical Education

**Brian T. Smith**, Senior Associate Dean for Administration & Finance; Executive Director and Chief Executive Officer of University of Colorado Medicine

**Jeffrey SooHoo, MD**, Assistant Dean of Admissions

**Chad Stickrath, MD**, Assistant Dean for Education, Colorado Springs Branch

**Adel Younoszai, MD**, Associate Dean, Clinical Affairs - CU Medicine Medical Director for Children's Health

**Shanta Zimmer, MD**, Senior Associate Dean for Education, Associate Dean for Office of Diversity & Inclusion, Faculty Lead LCME Accreditation

**Contacts****School of Medicine Dean's Office**

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Aurora, CO

Phone: 303-724-5375

Website: <https://medschool.cuanschutz.edu/deans-office/about-us/contact-us> (<https://medschool.cuanschutz.edu/deans-office/about-us/contact-us/>)

**School of Medicine Office of Admissions**

Building 500, First Floor

13001 E. 17th Place, Mailstop C292

Aurora, CO 80045

Phone: 303-724-6407

Fax: 303-724-8028

Email: [somadmin@ucdenver.edu](mailto:somadmin@ucdenver.edu)

**Admissions****AMCAS - Applying to Medical School**

CU School of Medicine requires all prospective students to apply through the American Medical College Application Service (AMCAS) based in Washington, DC.

The AMCAS online application usually opens in early June. Normally there is a three to four-week delay before the school receives the application from AMCAS due to transcript verification. Students are encouraged to apply **EARLY**.

## Degree and Coursework

The CUSOM requires that students have a baccalaureate degree from an accredited college or university prior to matriculation.

The CUSOM recognizes that the experiences and undergraduate academic experience of our applicants vary greatly. We encourage applicants to explore a diverse, interdisciplinary, and balanced undergraduate education, encompassing the necessary foundational knowledge in the biomedical sciences and humanities. Students need to be adequately prepared in the scientific underpinnings of modern medicine and also understand the psychosocial elements that are critical to its practice.

Accordingly, students should provide evidence to demonstrate competencies in the life sciences, social sciences, physics, and mathematics, based on the AAMC-HHMI Scientific Foundations for Future Physicians (<https://www.aamc.org/download/271072/data/scientificfoundationsforfuturephysicians.pdf>) and AAMC-Behavioral and Social Science Foundations for Future Physicians (<https://www.aamc.org/download/271020/data/behavioralandsocialsciencefoundationsforfuturephysicians.pdf>). These competencies, representing the cumulative knowledge, skills, and commitment to scholarship needed to undertake training as a future physician, can be met through traditional and/or interdisciplinary courses of study in an accredited institution of higher learning, or by other educational, employment, service or life experiences.

Competitive applicants should demonstrate in-depth competency in each of the following areas of study, as reflected by their academic achievements and letters of recommendation.

**Biology:** Applicants should demonstrate an understanding of molecular and cellular biology, genetics, and the principles underlying the structure and function of organ systems and the regulation of human physiology.

**Chemistry/Biochemistry:** Applicants should demonstrate competence in the basic principles of chemistry as it pertains to living systems, and knowledge of how biomolecules contribute to the structure and function of cells and organs.

**Mathematics/Statistics and Physics:** Applicants should demonstrate competence in the basic principles of physics and mathematics underlying living systems and must be able to apply quantitative reasoning, statistical principles, and appropriate mathematics to describe or explain phenomena in the natural world. A basic understanding of statistics or biostatistics is required to comprehend the quantitative aspects of medicine and biomedical research.

**Social Sciences and Communication:** It is important that applicants demonstrate competence in the humanistic understanding of patients as individuals and members of families, communities, and society. Applicants should be aware of factors that influence individual, community, and societal decisions regarding health and health care delivery. Applicants are expected to speak, write, and read English fluently.

Students are encouraged to consider additional coursework in biochemistry, computer sciences, genetics, humanities, and social sciences. AP and CLEP courses, as well as online courses, are viewed with a degree of comparability to college courses, as long as the US accredited degree-granting institution includes these credits on their transcript as fulfilling certain institutional requirements. Students who have AP or CLEP credit in the basic sciences are encouraged to take upper-level courses in these areas. Courses taken abroad are treated comparably to traditional courses, as long as these credits are included on the transcript of a U.S. accredited degree-granting institution.

### College Major – Is there a Preferred Major?

All majors are valued. Students are expected to engage in a rigorous academic program that enables them to understand the basic principles of science central to medicine. Independent of the choice of major, applicants are expected to have acquired effective learning habits, refined their critical thinking skills, and engaged in the habit of lifelong learning.

## MCAT

Students must take the Medical College Admissions Test (MCAT), with the oldest exam accepted no more than three years prior to matriculation year. For example, applicants applying for July 2023 matriculation must have MCAT results from January 2020 - October 2022. If the applicant takes the MCAT multiple times, the Admissions Committee will use the best one time composite score.

## Letters of Recommendation

Applicants are required to obtain letters to support their candidacy for admission. We require three to five letters or a committee summary letter; letters can come from a faculty member, clinical experience, research experience, or a current job as the letter transmits cogent information about the applicant's work. Obtaining a letter from the employer with who you are working with during the application year is highly recommended.

Evidence of a successful engagement in a post-college experience is considered a valuable addition to other letters that also may be part of your file.

Some colleges offer a pre-medical advising system and the committee writes letters for their students. A committee letter is sufficient to meet the medical school letter of recommendation requirements.

All letters must be transmitted electronically through AMCAS' application process. Please visit the AMCAS website for further information on how to apply and submit letters of recommendation, Letters of Rec FAQ. (<https://students-residents.aamc.org/applying-medical-school/faq/amcas-faq/>)

We strongly recommend that letters not be from family friends or others who know the student only peripherally.



## Secondary Application

Upon receipt and verification of the AMCAS application, the Office of Admissions will email eligible applicants the link to our Secondary Application that is to be completed online and submitted by the last day of November.

The secondary application consists of:

- Secondary application processing fee – fee is non-refundable (fee is waived for FAP eligible applicants)
- Required CUSOM essay
- Optional essays of interest in branches or programs
- CASPer test results

Completed secondary applications are forwarded to the admissions committee who perform a holistic review of applications and invite select applicants for an interview. Interview invitations are distributed from roughly August through February.

## The CASPer Test

All applicants applying to the University of Colorado School of Medicine are required to complete an online suite of assessments (Altus Suite), to assist with our selection process for the 2022-2023 Application Cycle.

Altus Suite is a standardized, three-part online assessment of non-cognitive skills, interpersonal characteristics, and personal values and priorities that we believe are important for successful students and graduates of our program. Altus Suite will complement the other tools that we use for applicant review and evaluation. In implementing Altus Suite, we are trying to further enhance fairness and objectivity in our selection process.

Altus Suite consists of:

- **Casper:** a 60-90 minute online situational judgment test (SJT)
- **Snapshot:** a 10-minute one-way interview with standardized questions
- **Duet:** a 15-minute value-alignment assessment

You will register for Altus Suite for **Medicine (UME) (CSP-10111 - U.S. Medicine)**.

Access [www.TakeAltus.com](http://www.TakeAltus.com) to create an account and for more information on **important dates and requirements**, and the Altus Suite assessments.

## Application Fee Payments & Waivers

Students invited to complete the secondary application must submit an application processing fee of \$100 with the secondary application. An application fee waiver will be granted to applicants who received approval from the AAMC Fee Assistance Program (FAP). The secondary application fee is non-refundable.

## Technical Standards for Admission

Applicants for admission to the School of Medicine and continuing students must possess the capability to complete the entire medical curriculum and achieve the degree. In addition to successfully completing all courses in the curriculum, students must be able to acquire the knowledge and skills necessary to function in a broad variety of clinical situations and to render a wide spectrum of patient care.

See Technical Standards for Admissions, Promotions, and Graduation here: Technical Standards for Admission ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/technical-standards-for-admission.pdf?sfvrsn=224dd6b9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/technical-standards-for-admission.pdf?sfvrsn=224dd6b9_0))

## Visiting Students

### Requirements

1. A completed application must be on file no less than eight weeks prior to the course's beginning date.
2. Immunization form must be completed, signed by your school and returned with your application. Individual health records will not be accepted.
3. Respiratory Mask fit testing (Any type is fine - in general we use 3M N95)
4. HIPAA training
5. USMLE Step 1 Pass
6. Personal health insurance
7. BLS or ACLS certified Criminal Background Report

8. Malpractice Insurance \$1,000,000/\$3,000,000
9. In Good academic standing and in final year of study
10. Instruction for OSHA safety measures and infection control precautions

A nonrefundable application fee of \$150 for MD students is due on receipt of an offer for an externship. DO and International medical students are required to pay a nonrefundable fee of \$4,150 on receipt of an offer for an externship.

Upon completion of the course, student evaluations will be sent by the department course coordinator for the elective. If your school requires their evaluation form to be used please include the form with your application material. Visiting students are also responsible for supplying a copy to the course coordinator once assigned.

We ask that you bring your home school student ID with you. A temporary student ID will be issued, which along with your home school ID will be used for identification on clinical services.

## Degree Requirements

**Please note: The School of Medicine's Curriculum is currently undergoing reform. Please visit this page (<https://medschool.cuanschutz.edu/education/current-students/curriculum/curriculum-reform/>) for more information on how the curriculum will look for the 2025 student class and beyond.**

## Trek Curriculum

The Trek Curriculum integrates basic science elements longitudinally throughout the academic careers of our students to prepare them and to enhance their personal and professional development as clinicians.

## Plains Curriculum

In the Plains, early clinical reasoning sessions will focus on introducing the vocabulary and fundamental concepts. Diagnostic schemas (flowcharts of diagnostic possibilities centered around a chief concern) of common conditions framed around prototypical clinical cases discussed in basic medical science coursework will help link basic science knowledge to the clinical reasoning, communication, and physical examination skills taught in the clinical skills course. Early case-based clinical reasoning sessions will highlight aspects of information gathering from the history and physical examination as well as aspects of hypothesis generation and problem representation. Consistent practice with oral presentations and medical documentation will be one way that the development of a differential diagnosis, a leading diagnosis, diagnostic justifications, and management and treatment plans will be taught in the clinical reasoning sessions.

Code	Title	Hours
<i>Fall Coursework</i>		
IDPT 5010	First Course	1
IDPT 5016	Foundational Principles	9
IDPT 5020	COMPASS	1.5-2.5
IDPT 5017	Hematologic & Lymphatic Systems	5
IDPT 5018	Gastrointestinal System	7
IDPT 5020	COMPASS	1.5-2.5
IDPT 5019	Pulmonary & Cardiovascular Systems	10
<i>Spring Coursework</i>		
IDPT 5021	Renal & Urinary Systems	7
IDPT 5020	COMPASS	1.5-2.5
IDPT 5022	Nervous System	8
IDPT 5023	Musculoskeletal & Integumentary Systems	7
IDPT 5024	Mind & Behavior	5
IDPT 5020	COMPASS	1.5-2.5
IPCP 5000	Interprofessional Collaborative Practice	1
<i>Summer Coursework</i>		
IDPT 5025	Endocrine & Metabolic Systems	7
IDPT 5026	Reproductive System & Life Cycle	9
IDPT 5020	COMPASS	1.5-2.5
<b>Total Hours</b>		<b>83.5-88.5</b>

## Foothills Curriculum

Longitudinal Integrated Clerkships (LICs) are teaching models in which students participate in the comprehensive care of patients over time, engage in continuity relationships with clinical faculty, known as preceptors, and meet core clinical competencies across multiple disciplines simultaneously (Worley et al. 2006).

Alpine Ascent Curriculum

The Alpine and Summit Curriculum encompasses the 20 months following the Foothills before graduation. This phase starts with 14 weeks of Advanced Science Courses that integrate authentic advanced clinical experiences with advanced science learning. This is followed by USMLE protected study and exam time. Then, students complete an individualized learning plan, consisting of an Acting Internship and other required and elective clinical and non-clinical experiences, to deepen their knowledge and skills as well-rounded physicians-in-training, choose and prepare for their residency and enhance their ability to positively transform the health of their future community.

At each major curricular transition (e.g. before/after each phase), students participate in a 1-2 week Base Camp curriculum to help them complement and consolidate prior learning and prepare for the next phase of learning.

Summit Curriculum

The Alpine and Summit Curriculum encompasses the 20 months following the Foothills before graduation. This phase starts with 14 weeks of Advanced Science Courses that integrate authentic advanced clinical experiences with advanced science learning. This is followed by USMLE protected study and exam time. Then, students complete an individualized learning plan, consisting of an Acting Internship and other required and elective clinical and non-clinical experiences, to deepen their knowledge and skills as well-rounded physicians-in-training, choose and prepare for their residency and enhance their ability to positively transform the health of their future community.

At each major curricular transition (e.g. before/after each phase), students participate in a 1-2 week Base Camp curriculum to help them complement and consolidate prior learning and prepare for the next phase of learning.

Longitudinal Curriculum

Mentored Scholarly Activity

The MSA project (<https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/mentored-scholarly-activity/>) is a four-year requirement for all undergraduate medical students. The project culminates in a capstone presentation in Phase IV prior to graduation. The goal of the MSA curriculum is to foster self-directed, life-long learning over the course of the medical student career. The MSA requires students to identify and work with a mentor to complete their projects, which also prepares them for working with mentors in their careers and serving as mentors to others in the medical profession.

Hybrid Curriculum

Applicable to the Class of 2024 Only

The School of Medicine curriculum is divided into four phases: Phase I, Phase II, Phase III, and Phase IV. Phases I and II are the Essentials Core Curriculum years and Phases III and IV are the Clinical Core Curriculum years. Woven through all phases are four threads that integrate over-arching topics into the curriculum: Culturally Effective Medicine; Evidence-Based Medicine and Medical Informatics; Humanities, Ethics, & Professionalism; and Medicine & Society.

In addition, the Mentored Scholarly Activity program, which provides students with the opportunity to work closely with a faculty mentor on a project of mutual interest, extends through all four years. The Foundations of Doctoring Curriculum extends through Phases I-III and emphasizes a humanistic approach to medical care while teaching and evaluating students' basic communication and physical examination skills. Students also have the option of participating in tracks across the four phases that offer activities and support for faculty and students with similar interests. These tracks are research, rural, and global health.

Essentials Core Curriculum

The Essentials Core consists of nine interdisciplinary blocks, each with a unique theme that integrates the basic, clinical, and social sciences. Each block is directed by clinical and basic science co-directors with the goal of presenting basic and social sciences in a clinical context. Most sessions are confined to the morning, allowing students afternoon study time and opportunities for electives and service activities. Lecture hours have been reduced to make way for interactive small groups, labs, team projects, and problem-based learning activities. In addition, students begin to explore personal interests with a mentor through the Mentored Scholarly Activity program and may choose to participate in tracks ([https://www.ucdenver.edu/academics/colleges/medschool/education/degree\\_programs/MDProgram/longitudinal/tracks/Pages/default.aspx](https://www.ucdenver.edu/academics/colleges/medschool/education/degree_programs/MDProgram/longitudinal/tracks/Pages/default.aspx)) that allow them to interact with like-minded faculty and students in an area of interest outside the standard curriculum. The leadership of the Essentials Core interacts closely and collaboratively with the leadership of the Clinical Core as well as with the directors of all affiliated programs. Students play a key role in curriculum oversight and policymaking and are active, valued members of the Essentials Core Block Director committee.

Code	Title	Hours
IDPT 5000	Foundations Doctoring I	2
IDPT 5001	Human Body	7
IDPT 5002	Molecules to Medicine	8
IDPT 5003	Blood and Lymph	4
IDPT 5004	Disease and Defense	5

IDPT 5005	Cardiovascular/Pul/Renal	9.5
IDPT 5090	Mentored Scholarship I	1
IDPT 5095	Research Track Phase I	1
IDPT 5096	Summer Research Phase I	1
IDPT 6000	Foundations Doctoring II	2
IDPT 6001	Nervous System	7.5
IDPT 6002	Digest/Endo/Metaboli Sys	9.5
IDPT 6003	Life Cycle	5
IDPT 6004	Infectious Disease	4.5
IDPT 6090	Mentored Scholarship II	1
IDPT 6095	Research Track Phase II	1

## Clinical Clerkship Curriculum

Clinical Clerkship Description The Clinical Core Curriculum (Phase III & IV)\* consists of required interdepartmental clerkships, Sub/Acting-Internships, and Phase IV Electives. Phase III provides intensive clinical experiences in the hospital, ambulatory clinics, emergency room, labor and delivery suite, and operating rooms.

During the clinical clerkship curriculum, students participate in history-taking, physical examination and assessment, development of a differential diagnosis, diagnostic decision-making, interpretation of laboratory results, treatment planning, transitions of care, and re-evaluation of patient status' after treatment is initiated. These activities and others provide medical students with opportunities to develop skills in lifelong self-directed learning, critical analysis of evidence, and clinical problem-solving.

*\*All Phase III clinical clerkships must be completed at the University of Colorado School of Medicine and course-approved sites, including the Area Health Education Centers (AHEC) system.*

Students at the University of Colorado School of Medicine have the option to participate in either the traditional model of clinical clerkships in which students' focus is a particular course, for a set period of time. Then for the next course, the student will learn new content. Students also have the opportunity to enroll in a Longitudinal Integrated Clerkship (LIC) in which all coursework is integrated throughout the entire clerkship year.

Code	Title	Hours
IDPT 7000	Foundations Doctoring III	0.5-1
IDPT 7001	Integrated Clinicians 1	2
IDPT 7002	Integrated Clinicians 2	2
IDPT 7003	Integrated Clinicians 3	4
IDPT 7010	Hospitalized Adult Care	16
IDPT 7020	Infant/Adolescent Care	12
IDPT 7030	Obstetrics and Gynecology	8
IDPT 7031	Emergency Care	4
IDPT 7040	Psychiatric Care	8
IDPT 7041	Neurologic Care	4-8
IDPT 7045	COVID Elective	1-8
IDPT 7050	Peri/Operative Care	16
IDPT 7070	Community and Primary Care	16
IDPT 7090	Mentored Scholarship III	1
IDPT 7095	Research Track Phase III	1

## Longitudinal Integrated Clinical Curriculum

Students in a Longitudinal Integrated Clerkship (LIC), spend their third phase III of medical school working all year long with the same specialty preceptor, providing longitudinal teaching, mentorship and evaluation. Students develop a cohort of patients from all specialties that they follow through primary care, subspecialty clinics, inpatient, and emergency settings throughout their year in the program. Students spend their clerkship year at a large urban safety-net hospital, caring for an almost entirely disadvantaged population faced with challenges such as poverty, low health literacy, language barriers, chronic illness, and high rates of mental illness and addiction. Students are selected into the LIC program based on their demonstrated commitment to caring for the vulnerable patient population served by their community and their capacity for self-directed, independent learning.

Students will also participate in shortened inpatient "immersions" in surgery, medicine, labor and delivery, gynecology, pediatrics, and psychiatry. The remainder of the year is dedicated to longitudinal, integrated clinical experiences working one-on-one with faculty preceptors in every specialty.

Students are given ample unstructured time for independent learning, follow-up with cohort patients, and professional development. Students participate in weekly small group didactic and workshop series focusing on core clinical topics and unique curricular content.

*International Consortium of Longitudinal Integrated Clerkships: A clinical curriculum in which students participate in the comprehensive care of patients over time, engage in continuity relationships with preceptors and evaluators, and meet core clinical competencies across multiple disciplines simultaneously.*

Code	Title	Hours
IDPT 7000	Foundations Doctoring III	0.5-1
IDPT 7001	Integrated Clinicians 1	2
IDPT 7002	Integrated Clinicians 2	2
IDPT 7003	Integrated Clinicians 3	4
IDPT 7012	Longitudinal Integrated Clerkship	2
IDPT 7013	Longitudinal Internal Medicine (LIC)	4-6
IDPT 7022	Longitudinal Pediatrics (LIC)	4
IDPT 7032	Longitudinal Obstetrics/Gynecology (LIC)	2-6
IDPT 7033	Longitudinal Emergency Med (LIC)	2-3,0.5
IDPT 7042	Longitudinal Psychiatry (LIC)	2-4
IDPT 7045	COVID Elective	1-8
IDPT 7052	Longitudinal Surgery (LIC)	2-6
IDPT 7062	Longitudinal Family Medicine (LIC)	4
IDPT 7080	Integrated Longitudinal Medicine Clerkship	16-32
IDPT 7085	Integrated Longitudinal Medicine Clerkship	2
IDPT 7090	Mentored Scholarship III	1

## Longitudinal Curriculum

The Longitudinal Curriculum at the University of Colorado, School of Medicine contains curricular components that extend from one Phase, or year, into another. Some of these components last for all four years. Student participation in Tracks is elective but the rest of the curriculum is required.

### Foundations of Doctoring

During Phases I, II, and III students will have clinical experiences with a community preceptor, and learn communication and physical exam skills in the Foundations of Doctoring curriculum. (<https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/foundations-of-doctoring/>) See also IDPT 5000, IDPT 6000, IDPT 7000, or IDPT 8000 Foundations Doctoring IV.

### Integrated Clinician Course (ICC)

In the third and fourth years of medical school, ICC brings together an entire class with two specific goals. The first goal is to provide important skills and knowledge in areas that are vital to the practice of medicine but are often difficult to teach or not uniformly taught in the clinical setting. ICC topics include health policy, ethics, professionalism, clinical decision-making, culturally effective care, clinically relevant basic science material, and advanced clinical skills. The second, but no less important goal, is to provide students with the time and opportunity to reflect on and discuss the process of becoming a physician. See also IDPT 7001, IDPT 7002, IDPT 7003, IDPT 8004, or IDPT 8005.

### Integrated Radiology Curriculum (IRC)

Over the four years of medical school, students will learn about radiology and imaging. Medical imaging plays an ever-increasing role in patient care and is an integral part of nearly all medical and surgical specialties.

Knowledge of radiology and its use in contemporary medical practice is a vital part of clinical practice and will be integrated throughout the medical student curriculum. Students will have also have the opportunity to spend time in the state-of-the-art BAR (Beginning to Advanced Radiology) Lab.

### Interprofessional Collaborative Practice (IPCP) See Also: See also IPCP 5000

The Interprofessional Collaborative Practice (IPCP) is a one-semester course required of health professions students from the dental, medical, nursing, pharmacy, physical therapy, and physician assistant programs on the Anschutz Medical Campus. There may also be students participating from the School of Public Health. The course takes place over 8 sessions in the spring of year 1. Sessions are two hours in length, and involve active learning in teams using a team paced learning method to engage learners in **Teamwork & Collaboration competency domains**:



**This course has 4 overarching goals:** Teamwork & Collaboration

- Describe the process of team development and the roles and practices of effective teams
- Demonstrate communication skills and processes within teams
- Recognize components of and perform effectively on sequential and simultaneous interprofessional collaborative teams
- Provide feedback on individual and team performance to improve the effectiveness of interprofessional teamwork

**Outcomes and Learning Objectives:**

- Describe the process of team development, and the roles and practices of effective teams
- Communicate with team members to clarify each member's responsibility in providing collaborative patient care.
- Recognize components of and perform effectively on sequential and simultaneous interprofessional collaborative teams
- Explore interprofessional communication and teamwork processes that address the goals of collaborative patient care.
- Engage health and other professionals in shared patient-centered and population-focused problem-solving.
- Give timely, sensitive, instructive feedback to others about their performance on the team, respond respectfully as a team member to feedback from others.
- Describe the potential impact of interprofessional collaboration on health care outcomes.

**Interprofessional Healthcare & Health Equity (IPHE)** See also IPHE 6000

The Interprofessional Healthcare Ethics and Health Equity (IPHE) is a one-semester course required of health professions students from the dental, medical, nursing, pharmacy, physical therapy, and physician assistant programs on the Anschutz Medical Campus. There may also be students participating from the School of Public Health. The course takes place over 8 sessions in the fall of year 2. Sessions are two hours in length, and involve active learning in teams using a team paced learning method to engage learners in **Value and Ethics competency domains:**

**This course has 3 overarching goals:** Values & Ethics

- Awareness: recognize when you are facing an ethical issue
- Analysis: study the ethical issue to arrive at a decision about the right thing to do
- Action: develop and practice executing your plan for how to do what's right

**Outcomes and Learning Objectives:**

- Identify health profession values, principles, and professional codes of ethics
- Understand the historical context of health professions ethics
- Identify social, structural, and systemic ethical issues and how they impact healthcare access, delivery of care, and patient outcomes
- Apply key ethical concepts to identifying and exploring ethical dilemmas
- Demonstrate approaches to addressing ethical dilemmas
- Demonstrate Interprofessional collaboration when addressing ethical dilemmas
- Compare and reflect on professional roles and responsibilities in the context of ethical dilemmas
- Identify the importance of situational leadership when facing ethical dilemmas

**Mentored Scholarly Activity**

The MSA project (<https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/mentored-scholarly-activity/>) is a four-year requirement for all undergraduate medical students. The project culminates in a capstone presentation in Phase IV prior to graduation. The goal of the MSA curriculum is to foster self-directed, life-long learning over the course of the medical student career. The MSA requires students to identify and work with a mentor to complete their projects, which also prepares them for working with mentors in their careers and serving as mentors to others in the medical profession. See also IDPT 5090, IDPT 6090, IDPT 7090, or IDPT 8090.

**Threads**

Threads are longitudinal essential themes that run through all four years of the medical student curriculum. Threads Directors work with Block Directors in each Phase to ensure continuity and development of these topics. The Threads are:

- Culture, Health, Equity & Society, Rita Lee, MD, and Paritosh Kaul, MD, Directors
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Medical students with a special area of interest may elect to participate in a track. Tracks provide additional opportunities to enhance learning and practice for students through special lectures, tailored clinical and research experiences, and sponsored mentored projects. Students will have the knowledge and level-appropriate responsibilities in each of the four years of medical school. To learn the requirements for application and what each track entails see the links below.

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  - IDPT 6665 Introduction to Global Health
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- Research Track (<https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/tracks/research-program/>)  
Providing students with in-depth long-term exposure to research.
  - IDPT 5095 Research Track Phase I
  - IDPT 6095 Research Track Phase II
  - IDPT 7095 Research Track Phase III
  - IDPT 8095 Research Track Phase IV
  - IDPT 8601 Research Track, Research I
  - IDPT 8602 Research Track, Research II
- Rural Track (<https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/tracks/rural-program/>)  
Giving students a broad and rich experience in rural medicine.
  - Students in the program complete their Foothills (<https://medschool.cuanschutz.edu/education/current-students/curriculum/curriculum-reform/>) clinical core year in a rural Colorado community. To prepare for this experience, students are invited to participate in a five-day orientation and rural immersion experience the summer before school starts. During the Plains (<https://medschool.cuanschutz.edu/education/current-students/curriculum/curriculum-reform/>) preclinical curriculum, a variety of lectures, labs, and workshops are held several times a month that will help interpret and bring a rural focus to what students are learning in their regular courses. In the Alpine Ascent (<https://medschool.cuanschutz.edu/education/current-students/curriculum/curriculum-reform/>) phase of the curriculum, there will be additional opportunities for participation in rural-focused courses.

## Legacy Curriculum

Applicable to the Class of 2023 and prior

The School of Medicine curriculum is divided into four phases: Phase I, Phase II, Phase III, and Phase IV. Phases I and II are the Essentials Core Curriculum years and Phases III and IV are the Clinical Core Curriculum years. Woven through all phases are four threads that integrate over-arching topics into the curriculum: Culturally Effective Medicine; Evidence-Based Medicine and Medical Informatics; Humanities, Ethics, & Professionalism; and Medicine & Society.

In addition, the Mentored Scholarly Activity program, which provides students with the opportunity to work closely with a faculty mentor on a project of mutual interest, extends through all four years. The Foundations of Doctoring Curriculum extends through Phases I-III and emphasizes a humanistic approach to medical care while teaching and evaluating students' basic communication and physical examination skills. Students also have the option of participating in tracks across the four phases that offer activities and support for faculty and students with similar interests. These tracks are research, rural, and global health.

## Essentials Core Curriculum

The Essentials Core consists of nine interdisciplinary blocks, each with a unique theme that integrates the basic, clinical, and social sciences. Each block is directed by clinical and basic science co-directors with the goal of presenting basic and social sciences in a clinical context. Most sessions are confined to the morning, allowing students afternoon study time and opportunities for electives and service activities. Lecture hours have been reduced to make way for interactive small groups, labs, team projects, and problem-based learning activities. In addition, students begin to explore personal interests with a mentor through the Mentored Scholarly Activity program and may choose to participate in tracks ([https://www.ucdenver.edu/academics/colleges/medicalschoool/education/degree\\_programs/MDProgram/longitudinal/tracks/Pages/default.aspx](https://www.ucdenver.edu/academics/colleges/medicalschoool/education/degree_programs/MDProgram/longitudinal/tracks/Pages/default.aspx)) that allow them to interact with like-minded faculty and students in an area of interest outside the standard curriculum. The leadership of the Essentials Core

interacts closely and collaboratively with the leadership of the Clinical Core as well as with the directors of all affiliated programs. Students play a key role in curriculum oversight and policymaking and are active, valued members of the Essentials Core Block Director committee.

Code	Title	Hours
IDPT 5001	Human Body	7
IDPT 5002	Molecules to Medicine	8
IDPT 5003	Blood and Lymph	4
IDPT 5004	Disease and Defense	5
IDPT 5005	Cardiovascular/Pul/Renal	9.5
IDPT 6001	Nervous System	7.5
IDPT 6002	Digest/Endo/Metaboli Sys	9.5
IDPT 6003	Life Cycle	5
IDPT 6004	Infectious Disease	4.5

#### Problem Based Learning

PBL uses a multidisciplinary approach, designed to break down the traditional barriers of compartmentalization that are imposed by a departmental structure. The PBL curriculum will consist of eight cases in Phase I and four cases in Phase II. Each case will require two or three 2-hour meetings in small groups of eight to nine students. The cases will be presented in the problem-based learning style, where clinical situations are revealed in consecutive sections. In the first meeting, the case is analyzed and learning objectives/issues are determined. Students then independently research their learning issues and post their summaries online in a Blackboard discussion forum so that everyone can read the learning issues in advance and be ready to discuss them at the next session. For the second session, students return to discuss how they satisfied their learning issues and then are presented with more information and additional problems. These problems help students bring together information that they have learned or will learn in lectures, labs, small groups, and on their own. The tutor will provide feedback to the students on whether the major goals of the case have been covered. At the end of each case, there will be questions that the group should answer to determine if they have learned the case content.

### Clinical Clerkship Curriculum

Code	Title	Hours
Traditional Clinical Clerkships		
IDPT 7010	Hospitalized Adult Care	16
IDPT 7020	Infant/Adolescent Care	12
IDPT 7021	Musculoskeletal Care	4
IDPT 7030	Obstetrics and Gynecology	8
IDPT 7040	Psychiatric Care	8
IDPT 7041	Neurologic Care	4-8
IDPT 7050	Peri/Operative Care	16
IDPT 7070	Community and Primary Care	16

### Longitudinal Integrated Clinical Clerkship Curriculum

Students in a Longitudinal Integrated Clerkship (LIC), spend their third phase III of medical school working all year long with the same specialty preceptor, providing longitudinal teaching, mentorship and evaluation. Students develop a cohort of patients from all specialties that they follow through primary care, subspecialty clinics, inpatient, and emergency settings throughout their year in the program. Students spend their clerkship year at a large urban safety-net hospital, caring for an almost entirely disadvantaged population faced with challenges such as poverty, low health literacy, language barriers, chronic illness, and high rates of mental illness and addiction. Students are selected into the LIC program based on their demonstrated commitment to caring for the vulnerable patient population served by their community and their capacity for self-directed, independent learning.

Students will also participate in shortened inpatient “immersions” in surgery, medicine, labor and delivery, gynecology, pediatrics, and psychiatry. The remainder of the year is dedicated to longitudinal, integrated clinical experiences working one-on-one with faculty preceptors in every specialty. Students are given ample unstructured time for independent learning, follow-up with cohort patients, and professional development. Students participate in weekly small group didactic and workshop series focusing on core clinical topics and unique curricular content.

*International Consortium of Longitudinal Integrated Clerkships: A clinical curriculum in which students participate in the comprehensive care of patients over time, engage in continuity relationships with preceptors and evaluators, and meet core clinical competencies across multiple disciplines simultaneously.*

Code	Title	Hours
IDPT 7000	Foundations Doctoring III	0.5-1
IDPT 7001	Integrated Clinicians 1	2

IDPT 7002	Integrated Clinicians 2	2
IDPT 7003	Integrated Clinicians 3	4
IDPT 7012	Longitudinal Integrated Clerkship	2
IDPT 7013	Longitudinal Internal Medicine (LIC)	4-6
IDPT 7022	Longitudinal Pediatrics (LIC)	4
IDPT 7032	Longitudinal Obstetrics/Gynecology (LIC)	2-6
IDPT 7033	Longitudinal Emergency Med (LIC)	2-3,0.5
IDPT 7042	Longitudinal Psychiatry (LIC)	2-4
IDPT 7045	COVID Elective	1-8
IDPT 7052	Longitudinal Surgery (LIC)	2-6
IDPT 7062	Longitudinal Family Medicine (LIC)	4
IDPT 7080	Integrated Longitudinal Medicine Clerkship	16-32
IDPT 7085	Integrated Longitudinal Medicine Clerkship	2
IDPT 7090	Mentored Scholarship III	1
IDPT 7095	Research Track Phase III	1

## Longitudinal Curriculum

The Longitudinal Curriculum at the University of Colorado, School of Medicine contains curricular components that extend from one Phase, or year, into another. Some of these components last for all four years. Student participation in Tracks is elective but the rest of the curriculum is required.

### Foundations of Doctoring

During Phases I, II, and III students will have clinical experiences with a community preceptor, and learn communication and physical exam skills in the Foundations of Doctoring curriculum. (<https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/foundations-of-doctoring/>) See also IDPT 5000, IDPT 6000, IDPT 7000, or IDPT 8000 Foundations Doctoring IV.

### Integrated Clinician Course (ICC)

In the third and fourth years of medical school, ICC brings together an entire class with two specific goals. The first goal is to provide important skills and knowledge in areas that are vital to the practice of medicine but are often difficult to teach or not uniformly taught in the clinical setting. ICC topics include health policy, ethics, professionalism, clinical decision-making, culturally effective care, clinically relevant basic science material, and advanced clinical skills. The second, but no less important goal, is to provide students with the time and opportunity to reflect on and discuss the process of becoming a physician. See also IDPT 7001, IDPT 7002, IDPT 7003, IDPT 8004, or IDPT 8005.

### Integrated Radiology Curriculum (IRC)

Over the four years of medical school, students will learn about radiology and imaging. Medical imaging plays an ever-increasing role in patient care and is an integral part of nearly all medical and surgical specialties.

Knowledge of radiology and its use in contemporary medical practice is a vital part of clinical practice and will be integrated throughout the medical student curriculum. Students will have also have the opportunity to spend time in the state-of-the-art BAR (Beginning to Advanced Radiology) Lab.

### Interprofessional Education (IPE)

**Interprofessional Education (IPE)** at the Anschutz Medical Campus consists of 3 components: classroom team-based learning, simulation experiences at the Center for Assessing Professional Excellence (CAPE), and practicum experiences at clinical sites. The classroom course develops competencies in teamwork and collaboration, values and ethics, and quality and safety for first and second-year health professions students from dentistry, medicine, nursing, pharmacy, physical therapy, and physician assistant programs. Medical students participate in the IPE simulation and clinical practicums during their third year. See also IPCP 5000 or IPHE 6000.

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## Curriculum Reform/Student Learning Outcomes

### Guiding Principles for Curricular Reform

**Vision:** Our graduates will be physician leaders capable of transforming the health of diverse communities.

**Mission:** Through a longitudinally integrated curriculum, we aim to educate physician leaders who are curious, life-long learners with a commitment to serve the profession, our patients, and society.

#### Values/Pillars: Leadership, Curiosity, Commitment

1. We want our student outcomes to be tightly linked to our curricular content and delivery; therefore, we aim for our new curriculum to be Outcomes-Based: Our curriculum content, structure, and instructional strategies should support the type of physicians we want to produce with assessments that enhance learning. New research in medical education and strategies for improved adult learning aims to inform curricular approaches,



therefore we aim for our new curriculum to be Evidence-Based: Our curriculum content, structure, and instructional strategies should be based on sound educational theory when possible. When not possible, we will strive to add to the evidence base through rigorous program evaluation.

2. Current structures in clinical care and in teaching lead to fragmentation of relationships between students, teachers, and patients; we aim for our new curriculum to focus on a diversity of Longitudinal Relationships: Many of the desired attributes we hope students develop are learned by example. The program must bring students into contact with strong, positive role models who are clinicians, investigators, peers, patients, advocates, and community members.
3. The science of medicine is evolving at a rapid pace necessitating the integration of relevant scientific concepts throughout medical training and into practice, therefore we aim to enhance the integration of foundational and more complex scientific concepts: The scientific knowledge and principles relevant to clinical medicine need to be 'integrated and sequenced optimally' across all years of medical school. Advanced sciences should be explored later in the curriculum, in the context of patient care experiences.
4. Physician leaders of tomorrow need to be well-rounded while also developing unique areas of expertise, therefore our new curriculum will create opportunities for Individualization: Students will have a choice in their learning and time to pursue an area(s) of interest in-depth and to individualize their learning, especially as they advance toward graduation outcomes and choose careers paths.
5. In some cases, the complexity of the clinical care environment and pressures for efficient care have sidelined our learners further from the bedside, therefore we aim for our new curriculum to enhance authentic, patient-centered experiences as early as possible in the clinical and community environments: The environment needs to provide opportunities for students to demonstrate their ability to act with regard for others (e.g., involvement with patients or community, service experiences) and demonstrate progressive competency in these interactions.
6. In the face of exponentially expanding knowledge, rapidly changing health care, and evolving societal systems, we recognize the importance of vitality and well-being. Our curriculum will support student and faculty vitality through meaningful relationships, connection to purpose, and personal development that emphasizes sustainability and the importance of diversity, equity, and inclusion.
7. Given the rapid pace of evolution of the medical sciences, we recognize that we cannot teach our students everything during the four years of medical school, therefore we strive to create graduates with a Growth Mindset: Graduates must be equipped with skills for a lifetime of inquiry, critical thinking and ultimately, the ability to make informed, evidence-based decisions in the face of uncertainty.

### **Learning Theory in the Trek Curriculum**

**By Paige Romer, MA, MS2**

(September 2021) During the first week of orientation, Trek students completed a session called Learning How to Learn Medicine, in which they discussed several key topics from learning theory and how those topics would be relevant to them in medical school.

The session covered the following concepts and presented concrete strategies for how to implement these best study practices within the Trek curriculum.

#### **Different Types of Memory**

Working memory is the memory system that is used when you are actively thinking about a topic or learning it for the first time. Recent research has shown that the average person can hold approximately four pieces of information or four chunks (more on this later) in their working memory. Long-term memory is where information is stored for later use. The process of moving information from short-term memory to long-term memory is called encoding. The process of moving information from long-term memory to short-term memory is called retrieval. For students, one of the most effective ways to strengthen long-term memory is retrieval practice or the process of recalling information out of long-term memory and into short-term memory by self-testing.

#### **Chunking**

Chunks are pieces of information that are bound by meaning or use. Examples of chunks that students will create in medical school are the glycolysis pathway, a pediatric cough differential diagnosis, blood flow patterns in the upper limb, and the process of suturing. Chunking is important because it allows us to increase our working memory capacity. By holding four chunks instead of four discrete pieces of information in the working memory, we can make new connections and develop a deeper understanding.

#### **Learning Illusions**

Learning illusions are activities that feel like learning but do not involve true encoding or retrieval. Examples of encoding are rereading notes multiple times, highlighting a textbook, or rewatching a video on the same topic multiple times. When we engage in these activities, our working memory tricks us because it recognizes familiar information, but no encoding actually happens. In the Learning How to Learn Medicine session, students discussed strategies that could be used in place of learning illusions, including rewriting notes from memory rather than rereading them or making flashcards while watching a video to later be used for retrieval practice.

#### **Interleaving**

Interleaving is the process of switching between different topics as you study. Interleaving creates stronger neural connections and allows for less obvious, more creative connections to be made between topics. It ultimately leads to better and more durable understanding along with flexible thinking skills.

#### **Spaced Repetition**

Spaced repetition is the process of self-testing on material over increasing intervals of time, rather than cramming and learning all the information at once. Spaced repetition has been shown to be one of the most effective ways of beating the forgetting curve, which shows that roughly 50% of new information is forgotten within a day of learning it if no retrieval practice occurs.

In the Learning How to Learn Medicine session, students were asked to consider times in their lives that they had used each of the above learning theories in the process of acquiring a skill. They each walked away with a plan for how to incorporate these strategies into their study practices.

During the session, students were also able to see how these theories are already woven into the Trek curriculum. For example, the LIC (Longitudinal Integrated Clerkship) model involves both interleaving and spaced repetition by having students switch between different disciplines throughout the week and spreading their learning out over the space of the entire clinical year. Additionally, the Plains curriculum involves interleaving by integrating the clinical sciences and medical sciences throughout each block.

The incorporation of learning theory into the Trek curriculum design will provide students with the opportunity to build the skills that will allow them to be successful, curious, and joyful lifelong learners.

## **From the Desk of Shanta Zimmer, Senior Associate Dean for Education**

### **Clinical Reasoning in the Plains Year of the Trek Curriculum**

(November 2020) Love to think, talk, or teach about clinical reasoning? Please read on! The CUSOM is planning to develop new educational materials, teaching methods, and assessment tools to explicitly introduce clinical reasoning concepts in the TREK curriculum. Developing cohesion of goals, learning objectives, and assessments related to clinical reasoning across the Plains, Foothills, and Alpine Ascent phases of the curriculum will be important and exciting educational work to be done! If you are interested in helping develop new educational materials in the Plains or collaborating on existing or anticipated teaching activities and assessments across the TREK curriculum, please reach out to [todd.guth@CUAnschutz.edu](mailto:todd.guth@CUAnschutz.edu).

Clinical reasoning has been defined in a general sense as “the thinking and decision-making processes associated with clinical practice” or even more simply “diagnostic problem solving” (Higgs and Jones, 2000 and Elstein, 1995). Clinical reasoning means different things to different individuals, but for the purposes of the TREK curriculum, we settled on a definition of clinical reasoning as the ability of students “to sort through a cluster of features presented by a patient and accurately assign a diagnostic label, with the development of an appropriate treatment strategy being the end goal” (Eva, 2005). Clinical reasoning conceptualized in this way can be deconstructed into seven discreet domains that allow for the alignment of teaching materials and assessment tools in the new TREK curriculum.

In the Plains, early clinical reasoning sessions will focus on introducing the vocabulary and fundamental concepts. Diagnostic schemas (flowcharts of diagnostic possibilities centered around a chief concern) of common conditions framed around prototypical clinical cases discussed in basic medical science coursework will help link basic science knowledge to the clinical reasoning, communication, and physical examination skills taught in the clinical skills course. Early case-based clinical reasoning sessions will highlight aspects of information gathering from the history and physical examination as well as aspects of hypothesis generation and problem representation. Consistent practice with oral presentations and medical documentation will be one way that the development of a differential diagnosis, a leading diagnosis, diagnostic justifications, and management and treatment plans will be taught in the clinical reasoning sessions.

Students will be assessed using a combination of workplace-based assessments in their preceptorship, non-workplace-based assessments, and objective structured clinical examinations (OSCE) during the Plains year. The assessment data will be organized around the seven domains of clinical reasoning and sample broadly across a variety of clinical content areas. Ideally, this student clinical reasoning performance data in the Plains can be linked to other data across clinical experiences in the Foothills and Alpine Ascent to provide a programmatic understanding of clinical reasoning performance in the TREK curriculum. Again, if you are interested in helping develop new educational materials in the Plains or collaborating on existing or anticipated teaching activities and assessments across the TREK curriculum, please reach out to [todd.guth@CUAnschutz.edu](mailto:todd.guth@CUAnschutz.edu).

MD candidates may choose to pursue careers other than clinical medicine for a variety of personal and professional reasons, and they may do so at different times in their training or careers. Alternative paths might occur directly out of medical school, out of internship once a license is earned, after residency, or after years of practicing clinical medicine. At any of these stages, a dual degree may be useful, including Ph.D., MBA, JD, MPH, MHA, etc.

The School of Medicine currently has four formal joint or dual degree programs, the Medical Scientist Training Program (MSTP), Master of Public Health (MPH), Master of Science in Bioengineering (MS), and the Masters in Business Administration (MBA) program.

## **MD/Ph.D Dual Degree**

The MSTP program offers a combined MD/Ph.D. degree and is a rigorous multi-year program in which students complete the basic science curriculum and then enter the graduate school to complete basic science research leading to a doctoral thesis before returning to complete the clinical curriculum. For MSTP Program ([http://www.ucdenver.edu/academics/colleges/medicalschoo/education/degree\\_programs/mstp/Pages/MSTP.aspx](http://www.ucdenver.edu/academics/colleges/medicalschoo/education/degree_programs/mstp/Pages/MSTP.aspx)) details

## MD/MS in Bioengineering

The MD/MS in Bioengineering program enables current MD candidates to complete MS requirements in bioengineering. A motivated student can complete these requirements in three semesters, usually taking a year off between Phases III & IV (May to May). Additional time may be required depending on the student's course choices and research project. All students will be evaluated in a final oral defense examination that includes an open research seminar. For more information about Dual Bioengineering Degrees (<http://www.ucdenver.edu/academics/colleges/Engineering/Programs/bioengineering/GraduateProgram/MasterofScience/Pages/MasterofScience.aspx>).

## MD/MPH Dual Degree

This dual degree is offered by the University of Colorado School of Medicine and the Colorado School of Public Health on the CU Anschutz Medical Campus. In addition to receiving a Doctor of Medicine (MD) degree, students concurrently receive the Master of Public Health (MPH) degree in a concentration of their choice: Applied Biostatistics; Community & Behavioral Health; Environmental & Occupational Health; Epidemiology; Health Systems, Management & Policy; Maternal and Child Health; or a custom concentration. **Only students already in or accepted into the University of Colorado MD program are eligible to apply.**

To learn more about this dual degree, please click here (p. 122) to view the full information within the Colorado School of Public Health portion of the academic catalog.

## MBA in Healthcare Administration

The School of Medicine, working with the University of Colorado Denver's downtown campus, also provides the opportunity for students to earn a Master of Business Administration (MBA) degree in one calendar year. Students enter this program after completing Phases I, II, and III. Students must apply to the MBA program separately; however, the program will waive the requirement for the GMAT and use the student's MCAT scores. This program provides an excellent opportunity for medical students who wish to understand the business of medicine and to develop the skills necessary to work in health care administration. For additional details on the MBA in Healthcare Administration (<https://business.ucdenver.edu/mba/health-administration-mba/>).

## Student Policies and Procedures

### Student Policies (all Phases)

- Policies and Procedures Hybrid and Legacy Curriculum ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/2021-22-policies-and-procedures-hybrid-and-legacy-curriculum.pdf?sfvrsn=b06bacba\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/2021-22-policies-and-procedures-hybrid-and-legacy-curriculum.pdf?sfvrsn=b06bacba_0))
- School Hazardous Exposure Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/hazardous-exposure-policy-20.pdf?sfvrsn=d3d0a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/hazardous-exposure-policy-20.pdf?sfvrsn=d3d0a8b9_2))
- Appropriate Persons in the Learning Setting Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/nonstudentvisitorsinlearningsettings.pdf?sfvrsn=efd0a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/nonstudentvisitorsinlearningsettings.pdf?sfvrsn=efd0a8b9_2))
- Medical Student Professionalism Committee (<https://medschool.cuanschutz.edu/education/current-students/support-for-students/medical-student-professionalism-committee/>)
- Reproductive Health Hazards (Campus policy) ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/reproductive-health-hazards-20.pdf?sfvrsn=aadfa8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/reproductive-health-hazards-20.pdf?sfvrsn=aadfa8b9_2))
- Uniform Standard Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/uniformstandardpolicy-20.pdf?sfvrsn=54dea8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/uniformstandardpolicy-20.pdf?sfvrsn=54dea8b9_2))
- Security, Student Safety, and Disaster Preparedness Table ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/securitydisasterpreparedness-20.pdf?sfvrsn=26dfa8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/securitydisasterpreparedness-20.pdf?sfvrsn=26dfa8b9_2))
- Technical Standards ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/technicalstandards-20.pdf?sfvrsn=d7d0a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/technicalstandards-20.pdf?sfvrsn=d7d0a8b9_2))
- Timely Student Access to Grades ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/timelystudaccesstoassessments-20.pdf?sfvrsn=2adfa8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/timelystudaccesstoassessments-20.pdf?sfvrsn=2adfa8b9_2))

### Phases I & II

- Formative Feedback Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/formativefeedback-2-.pdf?sfvrsn=e7d2a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/formativefeedback-2-.pdf?sfvrsn=e7d2a8b9_2))
- Lecture Recording Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/lecturerecordingpolicy-20.pdf?sfvrsn=ebd2a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/lecturerecordingpolicy-20.pdf?sfvrsn=ebd2a8b9_2))
- Lecture Recording - Student Acknowledgement of Policy Form ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/studentacknowledgementofrecordingpolicy-20.pdf?sfvrsn=f9d2a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/studentacknowledgementofrecordingpolicy-20.pdf?sfvrsn=f9d2a8b9_2))
- Preclerkship Scheduled Time Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/preclerkshipscheduledtimepolicy-20.pdf?sfvrsn=a1d2a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/preclerkshipscheduledtimepolicy-20.pdf?sfvrsn=a1d2a8b9_2))
- Conduct of Proctored Exam Guidelines (<https://somed.ucdenver.edu/ume/ECGuidelinesforConductofRemoteProctoredExams.pdf>)

## Phases III & IV

- Clinical Sites Dress Code ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/dresscode-20.pdf?sfvrsn=40d4a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/dresscode-20.pdf?sfvrsn=40d4a8b9_2))
- Duty Hours Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/medstuddutyhourspolicy-20.pdf?sfvrsn=8bd4a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/medstuddutyhourspolicy-20.pdf?sfvrsn=8bd4a8b9_2))
- Family Member as Preceptor ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/familymemberaspreceptor20.pdf?sfvrsn=86d3a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/familymemberaspreceptor20.pdf?sfvrsn=86d3a8b9_2))
- Phase III Guidebook ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/ay-2022-class-of-24-phase-iii-guidebook-12-21.pdf?sfvrsn=628ca1ba\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/ay-2022-class-of-24-phase-iii-guidebook-12-21.pdf?sfvrsn=628ca1ba_0))
- Phase IV Guidebook ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/2023-p4-guidebook-jan2022.pdf?sfvrsn=926aa9ba\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/2023-p4-guidebook-jan2022.pdf?sfvrsn=926aa9ba_0))
- Logger Requirement Policy (Phase III only) ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/phaseiiiloggingrequiredclinicalexperiences20.pdf?sfvrsn=5cd4a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/phaseiiiloggingrequiredclinicalexperiences20.pdf?sfvrsn=5cd4a8b9_2))
- Site Assignment Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/clinicalsiteassignmentpolicy20.pdf?sfvrsn=91d4a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/clinicalsiteassignmentpolicy20.pdf?sfvrsn=91d4a8b9_2))
- Branch Assignment Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/branchassignmentpolicy20.pdf?sfvrsn=8ed3a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/branchassignmentpolicy20.pdf?sfvrsn=8ed3a8b9_2))
- Phase IV Add/Drop Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/phaseivaddroppolicy20.pdf?sfvrsn=f3d4a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/phaseivaddroppolicy20.pdf?sfvrsn=f3d4a8b9_2))
- Phase IV Absence Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/phase-iv-absence-policy20.pdf?sfvrsn=f7d4a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/phase-iv-absence-policy20.pdf?sfvrsn=f7d4a8b9_2))
- Required Phase III Resources ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/required-phase-3-resources-20.pdf?sfvrsn=82d3a8b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/required-phase-3-resources-20.pdf?sfvrsn=82d3a8b9_2))

## Teaching & Learning Policies and Guidelines

- Preparation to Teach and Provision of Instructor Resources ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/preparationandresourcetoteach20.pdf?sfvrsn=5a29a9b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/preparationandresourcetoteach20.pdf?sfvrsn=5a29a9b9_2))
- Educational Conflict of Interest ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/educationalconflictofinterestpolicy20.pdf?sfvrsn=d928a9b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/educationalconflictofinterestpolicy20.pdf?sfvrsn=d928a9b9_2))
- Teacher Learner Agreement ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/teacherlearneragreement-18-19.pdf?sfvrsn=3217c0b9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/teacherlearneragreement-18-19.pdf?sfvrsn=3217c0b9_0))
- Standards for Medical Student Supervision ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/standardsformedicalstudentsupervision20.pdf?sfvrsn=b829a9b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/standardsformedicalstudentsupervision20.pdf?sfvrsn=b829a9b9_2))
- CUSOM Competencies ("Program Objectives") ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/medical-knowledge-for-practice-20.pdf?sfvrsn=4630a9b9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/medical-knowledge-for-practice-20.pdf?sfvrsn=4630a9b9_0))

## Other

- Transfer Student Policy ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/transferstudentpolicy20.pdf?sfvrsn=5828a9b9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/transferstudentpolicy20.pdf?sfvrsn=5828a9b9_2))

## Professionalism

The CU Anschutz Office of Professional Excellence (<https://www.cuanschutz.edu/offices/professionalism/#:~:text=The%20CU%20Anschutz%20Office%20of,on%20the%20Anschutz%20Medical%20Campus>) provides a private resource to obtain a fair and equitable process and resolution for all matters pertaining to professionalism concerns regarding students, residents, fellows, staff members, and faculty in any school or college on the Anschutz Medical Campus.

## Teacher Learner Agreement

This Teacher Learner Agreement ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/teacherlearneragreement-18-19.pdf?sfvrsn=3217c0b9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/teacherlearneragreement-18-19.pdf?sfvrsn=3217c0b9_0)) serves both as a pledge and a reminder to teachers and students that their conduct in fulfilling their mutual obligations is the medium through which the profession perpetuates its ethical values.

## Risk Management

University Risk Management ([https://www.cu.edu/risk/?\\_ga=2.146526452.1555130146.1594649193-320053204.1594649193](https://www.cu.edu/risk/?_ga=2.146526452.1555130146.1594649193-320053204.1594649193)) promotes a safe learning and working environment for the University of Colorado community.

## Student Advocacy

As the Associate Dean for Student Advocacy, I help and advise medical and physical therapy students with any and all of their concerns. My interactions with students are entirely confidential and strictly "Off-of-the-Record". I have been in this position for nearly two decades and have gained considerable experience with many issues. At your request, I can serve as your advocate at promotions and honor council deliberations and various interactions with faculty. I am connected with and can make referrals to a cadre of other confidential professionals who are skilled in addressing academic and many other issues. It is always better if you seek my consultation earlier rather than later. My contact information is listed below:

John E. Repine, MD  
 Waring Professor of Medicine and Pediatrics  
 Director Webb-Waring Center  
 Associate Dean for Student Advocacy  
 303-724-4788 (office 8118 in RC-1)  
 303-917-4257 (cell)  
 John.Repine@cuanschutz.edu (john.repine@ucdenver.edu)

## Disability, Travel, and Wellness Resources

As medical students, you have access to several resources from the AMA:

- Med-Plus Advantage Disability Income Coverage (<https://disabilityinsuranceagency.com/disability-insurance-quote/?msclkid=3a51269ea9b215bbae7c46d27895b73a>)
- Global Travel Service ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/global-travel-20.pdf?sfvrsn=b58cdeb9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/global-travel-20.pdf?sfvrsn=b58cdeb9_0))
- Stress and Wellness Program ([https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/stress-and-wellness-20.pdf?sfvrsn=eab7deb9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider31/education-docs/ome/stress-and-wellness-20.pdf?sfvrsn=eab7deb9_0))

In addition to the pdfs attached above you can get more information from the Med Plus Advantage site (<http://www.medplusadvantage.com/>) and enter the code 644189 into the "My Med Plus Advantage" portion to access their certificates of coverage as well as membership cards and services. Also, you can contact your AMA Insurance Agency representative:

Brian Farmer  
 National Account Executive, Brokerage Marketing  
 AMA Insurance Agency, Inc.  
 515 North State Street  
 Chicago, IL 60654  
 T: 312-464-5460  
 M: 317-432-7656  
 email: [brian.farmer@amainsure.com](mailto:brian.farmer@amainsure.com)

## Document Request

This online request form ([https://ucdenverdata.formstack.com/forms/som\\_document\\_request/](https://ucdenverdata.formstack.com/forms/som_document_request/)) can be used by former or current University of Colorado School of Medicine MD students. Requests may take up to 1 week after submission for processing. Upon completion, the Student Data Records Manager will send an email notification of completion.

Documents available:

- MSPE/ Dean's Letter
- Medical Education Verification
- True Copy of Diploma
- State Licensure (Form Only)
- State Licensure & Official Transcript

*If you only need an official transcript (with no accompanying form or letter), please order the transcript from the Office of the University Registrar.*

## Wellness

Campus Health Center (<https://www.ucdenver.edu/anschutz/campushealth/>) -The clinic accepts most health insurance, offers same or next-day appointments, and walk-ins are welcome. Example of services: Immunizations, minor skin condition, minor eye care, minor sprains, routine lab testing (strep, flu, mono) nebulizer treatments, suture removal, ear infections, colds and flu, well-woman exams, urinary tract infections. Blood glucose and blood pressure checks are also available. The clinic also has a well-staffed mental health clinic with experienced practitioners.



Mental Health Services (<https://www.ucdenver.edu/life/services/student-health/mental-wellness/>) - Provides comprehensive and confidential mental health services for all students (including postdoctoral fellows and graduate students) enrolled in the schools located at the Anschutz Medical Campus (Medical, Dental, Nursing, Pharmacy, Public Health, Physician Assistant, Physical Therapy, postdoctoral programs, graduate school, etc.). Initial appointments are scheduled relatively quickly, often within the same week. Options for ongoing care include receiving treatment from the AMC Student Mental Health clinicians, the UCH Outpatient Psychiatry Clinic, and a community network of providers, depending on insurance coverage.

Colorado Physician Health Program (CPHP) (<http://cphp.org/>) - CPHP can assist students, physicians, residents who may have health problems, which, if left untreated, could adversely affect their ability to practice medicine safely. They can assist with Depression, Stress, Relationship Issues, ADHD, Chronic Pain, Emotional Problems, Bipolar, Career Issues, Substance Abuse, Professional Boundary Issues, Sleep disorders, Psychiatric Issues, etc. There is no charge to students for individual CPHP appointments CPHP provides: Evaluation and Assessment, Treatment Referral and Monitoring, Urine Drug Screen, Family services

Advocacy and Support Center (<https://www.ucdenver.edu/anschutz/studentresources/student-assistance/student-resources/Pages/CU-Anschutz-Advocacy-and-Support-Center.aspx>) - The CU Anschutz Advocacy and Support Center is a campus resource providing support to students, faculty, and staff who've experienced sexual assault or interpersonal violence at home or on campus in an education/clinical environment or a community/public setting.

## Campus Resources

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- Academic Calendars (<https://www.ucdenver.edu/anschutz/studentresources/Registrar/CourseListings/Pages/AcademicCalendar.aspx>)
- Bursar's Office – Student Billing (<https://www.ucdenver.edu/anschutz/studentresources/StudentBilling/Pages/default.aspx>)
- Campus Security/Police (<https://www.cuanschutz.edu/police/>)
- CARE Team (Campus Assessment, Response & Evaluation Team) (<https://www.ucdenver.edu/student/health-wellness/care-team/>)
- Commuting to Campus (<https://www.ucdenver.edu/anschutz/studentresources/student-assistance/student-resources/Pages/Parking-Transportation.aspx>)
- Copy and Fax Machines (<https://www.ucdenver.edu/anschutz/studentresources/student-assistance/academic-resources/Pages/Copy-Machines.aspx>)
- Dental Insurance (<https://www.ucdenver.edu/life/services/student-health/dental/Pages/default.aspx>)
- Disability Resources and Services (<https://www.ucdenver.edu/anschutz/studentresources/student-assistance/academic-resources/Pages/Disability-Resources-and-Services.aspx>)
- Financial Aid (<https://www.ucdenver.edu/anschutz/studentresources/FASO/Pages/FASO.aspx>)
- Lactation Rooms Anschutz and Denver Campuses (<https://www.cu.edu/doc/copy-lactation-spaces-51018-updatespdf-1/>)
- Library (<https://library.cuanschutz.edu/>)
- Lockers Information Email ([tss.amcstudentlockers@ucdenver.edu](mailto:tss.amcstudentlockers@ucdenver.edu))
- Lost and Found on Anschutz Medical Campus (<https://www.cuanschutz.edu/police/services/lost-and-found/>)
- Needlesticks and Exposures Report (<https://mobile.ventivtechnology.com/go/0ad06ef8280ea36e48ddcf5a3f0b59f2/>)
- Office of Equity (<http://equity.ucdenver.edu/>)
- Office of Inclusion and Outreach (<https://www.ucdenver.edu/about/departments/odi/oio/Pages/default.aspx>)
- Office of Student Campus Services, AMC (<https://www.ucdenver.edu/anschutz/studentresources/student-assistance/Pages/default2.aspx>)
- Parking and Transportation (<https://www.ucdenver.edu/about/departments/FacilitiesManagement/ParkingMaps/Parking/Pages/Parking.aspx>)
- Printing Services (<https://www.ucdenver.edu/about/departments/printing/Pages/PrintingServices.aspx>)
- Student Conduct and Community Standards ([https://www.ucdenver.edu/life/services/standards/Pages/default.aspx%22%20/t%20%22\\_blank/](https://www.ucdenver.edu/life/services/standards/Pages/default.aspx%22%20/t%20%22_blank/))
- Student Insurance (<https://www.ucdenver.edu/life/services/student-health/insurance/Pages/default.aspx>)
- Student Housing (<https://www.ucdenver.edu/anschutz/studentresources/student-assistance/housing/Pages/home.aspx>)
- Veteran and Military Student Services (<https://www.ucdenver.edu/life/services/Veteran/Pages/vmsshhome.aspx>)
- Wellness Center (<https://anschutzwellness.com/>)
- Writing Center (<http://writingcenter.ucdenver.edu/>)

**To view the full Faculty Directory for the University of Colorado School of Medicine, please visit this site (<https://som.ucdenver.edu/Profiles/>).**

## Courses

### ANES 6038 - Clinical Anesthesiology IV (5.5 Credits)

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: GRD

Typically Offered: Fall.

### ANES 8000 - Clinical Anesthesiology (4-8 Credits)

4 wks. Students will work one-on-one with anesthesia faculty and residents to gain further practical experience in all aspects of peri-operative care; improving skills gained in the third year and developing a deeper understanding of the breadth of anesthetic practice.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

### ANES 8001 - Surgery Intensive Care AI (8 Credits)

The goal is to prepare MSIV's for internship by having them manage 'their' patients, present on multidisciplinary rounds, call consults, assist/performing procedures, discuss clinical topics & receive didactics. Honors requires clinical excellence and a written paper.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

### ANES 8002 - Anesthesia Subspecialties (4-8 Credits)

4 wks. Max: 4. Course exposes students to subspecialty areas in Anesthesiology. Students will attain additional experience in selected areas of anesthetic practice. Options include Acute and Chronic Pain, L & D, Cardiothoracics, Neurosurgery, Transplants and Pre-Anesthesia Testing. Prereq: ANES 8000.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

### ANES 8100 - ANES Elective Away (8 Credits)

This Anesthesiology elective will be held at a site in Colorado, another state or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

### ANES 8600 - Research in Anesthesiology (4-16 Credits)

2-8 wks. Prereq: Special permission and individual arrangements required in advance. The student must receive prior approval from the Associate Dean for Student Affairs. This course allows students to complete a research project in Anesthesiology.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Spring.

### ANES 8630 - ANES Research Elective Away (4-16 Credits)

This Anesthesiology research elective will be held at a site in Colorado or another state. Course is only offered 2, 4 or 8 weeks

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

### DERM 6660 - Career Elective in DERM (1 Credit)

This course is designed to provide an introduction into the field of dermatology. Students will shadow a dermatologist in clinic to get an idea of the scope of practice in dermatology which encompasses medical dermatology, surgery and dermatopathology.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

### DERM 8000 - Dermatology Clinical Elective (4 Credits)

This course is designed to provide a broad overview of medical, surgical and pediatric dermatology. Students will become familiar with the differential diagnosis and treatment of common skin disease, and procedural dermatology including skin biopsies and cryosurgery.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DERM 8001 - Advanced Dermatology (8 Credits)**

This course is designed to provide a broad overview of medical, surgical and pediatric dermatology. Students will become familiar with the differential diagnosis and treatment of common skin disease, and procedural dermatology including skin biopsies and cryosurgery. Requirements: Instructor Consent

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**DERM 8200 - Course Work Away in Colo (4-32 Credits)**

Grading Basis: Conversion

Repeatable. Max Credits: 32.

**DERM 8300 - DERM Elective Away (4-8 Credits)**

This elective will be held at a site in Colorado or another state. International electives not allowed.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**DERM 8600 - Research in Dermatology (4-16 Credits)**

4,6, 8 wks. Max: 5. Research elective allows the student to design and implement a basic science, clinical or epidemiologic research project relevant to dermatology or cutaneous biology. Students are expected in research seminars and to present their results. Prereq: Course Director approval required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**DERM 8630 - DERM Research Away (4-16 Credits)**

This research elective will be held at a site in Colorado or another state. International electives not allowed.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**EMED 6620 - A Historical Survey of Pharmacology and Toxicology (1 Credit)**

The objective of this course is to illustrate basic pharmacological and toxicological principles using case examples. The course will consist of a series of lectures that will use historical events to demonstrate basic toxicological and pharmacological principles and the clinical effects of poisons. For Phase II Medical Students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**EMED 6624 - Introduction to Wilderness Medicine (1 Credit)**

A didactic course to review basics of wilderness and environmental medicine, including high altitude, hypothermia, frostbite, dive medicine, and expedition medicine PLUS a morning with Rocky Mountain Rescue in Boulder learning rescue techniques and skills.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**EMED 6626 - Pre-Hospital Medicine (1 Credit)**

Min:10 Max:20. Enrollment restricted to (Emergency Medicine Interest Group) EMIG only. Students required to participate in 1 ten hour ride along shift with Denver Paramedic Division 911 ambulances, attend required Introductory lecture on pre-hospital medicine and submit 1 evaluation from ambulance ride.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**EMED 6627 - Introductions to Emergency Medicine and Trauma (1 Credit)**

This rotation is designed for the senior medical student who may be applying to primary care or other specialties who wants to gain exposure to emergency medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**EMED 6628 - Critical Care Transport Med (1 Credit)**

The student will attend one lecture to orient them to the basic principles critical care transport and flight medicine as well as an extended orientation to the helicopter at St. Anthony's. During their 12-hour day with Flight for Life they will be part of the team of providers to respond to scenes or to other facilities for the transportation of critical patients. At the end of the course there will be a wrap-up session where we will discuss their unique experiences and reflect on what they have learned. Prerequisite: EMED 6626 Pre-Hospital Medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**EMED 6629 - Emergency Med Skills (1 Credit)**

This course provides 48 hours of clinical work with an EMED attending physician with the purpose of exposing the student to the EMED environment and teaching procedural skills necessary for basic clinical care in preparation for an international experience. Restrictions: Approval by Course Director.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**EMED 6630 - Emergency Medicine in South Africa (8 Credits)**

This is a 6 week clinical experience, students work in the Emergency Department of a public hospital in Cape Town, South Africa and contribute to ongoing research projects done in conjunction with Stellenbosch University. Prerequisite: Successful completion of EMED 6629. Course Restrictions: Course Director Approval.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**EMED 6631 - Wilderness Advanced First Aid (1 Credit)**

Wilderness Advanced First Aid covers skills and applied knowledge to respond to medical emergencies in austere environments. In addition, it provides students an introduction and exposure to the art of teaching and instruction.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 5.

Typically Offered: Spring.

**EMED 8004 - Emergency Med Univ Hosp (4-8 Credits)**

2-4 wks. Max:4. Students are primary caregivers in a level II trauma center with a variety of patients and individual teaching time with attendings and senior residents. An excellent experience for students seeking instruction in the assessment and management of the undifferentiated patient.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**EMED 8005 - Emergency Medicine DHMC (8 Credits)**

This rotation is designed for the senior medical student who may be applying to primary care or other specialties who wants to gain exposure to emergency medicine.

Grading Basis: Medical School

Typically Offered: Spring.

**EMED 8006 - Advanced Emergency Medicine (8 Credits)**

4 wks. Max:4. Student is primary caregiver for acutely ill/injured patients at DHMC Emergency Department, supervised by Emergency Medicine Staff. Daily lectures in traumatic/medical emergencies, conferences, "board rounds". Orientation, first day, 7:30 a.m. Admin Conf room.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Summer.

**EMED 8007 - Emergency Medicine Career Elective – Anschutz Campus (8 Credits)**

Students will rotate through Emergency Departments at University Hospital and Children's Hospital Colorado to gain education through a broad range of Emergency Medicine experiences. This course complements and does not replace 8006 and is offered during the summer of 2020. Emergency Medicine-Bound Senior Medical Students, Course Director Approval.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

Typically Offered: Summer.

**EMED 8008 - Emergency Medicine Boot Camp (2-4 Credits)**

Through workshops and simulation, career-bound Emergency Medicine students will gain confidence in the approach to, and management of critical illness. Students will acquire successful approaches to cross-cover situations, patient decision making capacity, application of technology and mental preparation in advance of internship. Requisite: Emergency Medicine Career Bound Senior Medical Students

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

Typically Offered: Spring.

**EMED 8010 - Climate Change and Medicine (4 Credits)**

Climate change has profound impacts on health including food insecurity, degraded air quality, civil unrest, and changes in vector-borne disease. This course explores the physiologic, ecologic and social interactions resulting in these impacts and provides a foundation in climate med and skills in science communication, policy and advocacy.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**EMED 8011 - Advanced EMED URM (8 Credits)**

Purpose: Guide and support medical students from URM groups who have an interest in pursuing EM as a career. This is an advanced clinical rotation at DHMC a

Grading Basis: Medical School

Typically Offered: Fall, Summer.

**EMED 8012 - Virtual EM DHREM (4 Credits)**

An entirely virtual EM education experience for senior medical students pursuing EM as a career. Through virtual platforms and engaging interactive education sessions with our residents and EM faculty from Denver Health and the University of Colorado we will explore elements and themes that represent the essence of Emergency Medicine. Completion of major clinical year.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**EMED 8017 - Peds Emergency DHMC (4-8 Credits)**

2 or 4 wks. Max: 2. Students will serve as the primary caregivers in the Denver Emergency Center for Children at Denver Health, a pediatric emergency department treating 30,000 children annually. Students will be fully integrated into the team, treating children with acute and urgent illnesses.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**EMED 8024 - Clinical Toxicology (8 Credits)**

4 wks. Max:2. Provides an introduction to medical toxicology at the RMPCD. Student will participate in clinical service including telephone consultation, fundamentals of environmental toxicology, public health concerns, and occupational toxicology. Each student will make one presentation toward the end of their rotation.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**EMED 8030 - Rural Emergency Medicine (4-8 Credits)**

A continuation of the Emergency Care Clerkship, currently a two-week required component of Phase III study. This course is for students who seek more in-depth knowledge and additional clinical skills, relating to Emergency Care in the rural setting.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 84.

Typically Offered: Fall, Spring, Summer.

**EMED 8031 - Wilderness Medicine (4 Credits)**

2 wks. Min:10/Max:25. Students will learn core wilderness medicine principles in small group and lecture-based formats then apply their knowledge to scenarios in wilderness settings. The course will spend the first week near Estes Park and the second week near Moab, UT. Restrictions: Must be a 4th year student in good academic standing. Not available to externs. Variable fee. Course offered sections 47 and 48 only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**EMED 8050 - Emergency Medicine – Colorado Springs (4-8 Credits)**

Students will work with Emergency Medicine clinical faculty seeing patients in Colorado Springs' community-based Emergency Dept. Student will be exposed to the full range of Emergency Medicine. Course offered all semesters except sections 9-13 in 4th year.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**EMED 8100 - EMED Elective Away (4-8 Credits)**

This Emergency Medicine elective will be held at a site in Colorado, another state or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**EMED 8600 - Research EMED (4-24 Credits)**

Designed for students interested in Emergency Medicine research. Tailored research experiences in the Denver area can be established in a variety of settings. Speak with course director to design this elective. Offered 4, 8, or 12 weeks. Max enroll: 4.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**EMED 8630 - EMED Research Away (4-8 Credits)**

This Emergency Medicine research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**FMMD 5005 - Introduction to Primary Care Sports Medicine (1-2 Credits)**

In order to increase exposure to the field of Primary Care Sports Medicine, students will participate in community based athletic coverage with faculty in the Division of Primary Care Sports Medicine. The course runs through Trimester 2 and 3.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.



**FMMD 5010 - Rural Program Seminars and Workshops (1-2 Credits)**

Course is open to & required for all students in the Rural Program. Sessions are focused on knowledge & skills that prepare Rural Program students for the rural longitudinal integrated clerkship & span these general domains: Clinical knowledge, clinical skills, community engagement & public health, professional ethics & healthcare business and finance.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 6001 - Introduction to Primary Care Sports Medicine (1 Credit)**

In order to increase exposure to the field of Primary Care Sports Medicine, students will participate in community based athletic coverage with faculty in the Division of Primary Care Sports Medicine. The course runs from fall to spring. Phase I and II students can take course

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**FMMD 6624 - Intro to Homeless Healthcare (1 Credit)**

This course introduces students to healthcare of Denver's homeless through a homeless healthcare workshop and clinical care at the Stout Street Health Center. Must be available on Thursdays to complete required clinical sessions. Phase I and II students can enroll

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**FMMD 6628 - Rural Track Elective (1 Credit)**

The course goal is to increase the number of students who eventually enter, and remain, in practice in rural Colorado. The track provides students with, mentor-ship, additional knowledge, broad skills and rural socialization experiences throughout the 4 yearsof school. Prereq: Student must have been accepted in the Rural Track or have course director approval to add. Course restrictions: A two-semester course, students must complete fall and spring semesters.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 6630 - Summer Rural Track (8 Credits)**

Min:1 / Max:26. In this 4-week clinical experience students will live in a preceptor's community and participate in the professional and community life of a rural physician. Priority is given to students who have completed Rural Track elective FMMD 6628.

Grading Basis: Medical School

Typically Offered: Summer.

**FMMD 8002 - UC Health Fam Med AI (8 Credits)**

Offered all sections. 4 wks. Max:1. Experience CU Family Medicine! Students will be members of the inpatient service team at the Anschutz Inpatient Pavilion, take call, and will spend 2 half days per week at the A.F. Williams Family Medicine Center (outpatient clinic).

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8003 - Rose Family Medicine Sub-I (8 Credits)**

Students will be an acting intern on this Sub-I, including 3 wks of inpatient & 1 wk of outpatient. On inpatient, Sub-Is will complete orders, admission H&Ps, daily notes, discharge summaries, consultant calls, and attend didactics/teaching if time allows. On outpatient, Sub-Is will work alongside senior residents and faculty preceptors.

Grading Basis: Medical School

Typically Offered: Spring, Summer.

**FMMD 8007 - Out-Patient Family Med (8 Credits)**

Offered all sections. 4 wks. Max: 1. Course is an outpatient family medicine at A.F. Williams Family Medicine Center and Denver Health'sLowry Family Medicine Clinic. Multidisciplinary faculty including pharmacologists, behavioral scientist, and experienced family physicians and residents caring for a diverse group of patients.

Grading Basis: Medical School

**FMMD 8008 - Occup/Envir Med In FMMD (4-8 Credits)**

Offered all sections. 2 - 4 wks. Students will learn principles of Occupational and Environmental Medicine. A variety of assessments ranging from sport physicals, commercial/FAA exams to complex disability evaluations will be taught. Elective taught by Drs. Stephen Gray or James Bachman. Prereq: Course director approval required to add this elective.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**FMMD 8012 - Oral Health: Acute Dental (4 Credits)**

2 wks. Max:4. The focus of this elective is on recognition, assessment, triage and treatment of acute dental problems such as pain, infection and trauma. Students interested in rural or underserved primary care practice should take this elective. Prereq: 4th year medical student. Restrictions: This elective is offered only at selected times, students must communicate with Course Director about what times are available. It will not be offered in June, July, August, or December.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 8017 - Northern CO Fam Med/OB AI (8 Credits)**

Students work with family medicine faculty & residents while acting as the primary provider for several patients daily. Students see patients & assist team with daily tasks, while participating in the care of hospitalized adults, patients in OB triage, labor & delivery, postpartum, & normal newborn. 2wks inpt medicine, 2wks OB/Newborn.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8018 - St. Joseph-Bruner FMC AI (8 Credits)**

At the SJH FM Residency, the sub-intern will engage in both inpatient and outpatient clinical care. They will be an integral part of the Family Medicine Service during their inpatient weeks. The outpatient time will occur in the residency clinic, serving an urban, under-served patient population in Denver and surrounding areas.

Grading Basis: Medical School

Typically Offered: Spring, Summer.

**FMMD 8019 - St Anthony Nth Fam Med AI (8 Credits)**

Students will engage in outpatient and inpatient care during this sub-internship at a Colorado family medicine residency. You will be supervised by the senior resident or faculty attending while on this rotation. This rotation is split into Inpatient, OB if desired, and outpatient clinics.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8020 - St. Mary's Family Med AI (8 Credits)**

Students will practice as a PGY-1 on this Sub-I. The schedule includes 2 wks admitting and rounding on the teaching service, 1 wk of night float with a focus on independence, cross-cover, and evening ICU & Peds rounds, and 1 wk of the family med clinic, a fully-integrated PCMH. Faculty attendings give individual attention to learning.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8021 - Southern CO Family Med AI (8 Credits)**

During the Sub-I at the Southern CO Family Medicine residency, students will work with 2 interns and 2 upper level residents on the inpatient medicine service, with some opportunities to cross-cover on pediatrics & obstetrics. Several half-days per week, the student will be able to attend High-Risk OB and specialty outpatient clinics.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8022 - Swedish Family Medicine AI (8 Credits)**

Students will engage in outpatient and inpatient care during this sub-internship at the Swedish family medicine residency. Students will work with residents and faculty in the out-patient clinic, on the Inpatient Service, in the nursing home and at the school-based clinic.

Grading Basis: Medical School

Typically Offered: Fall, Summer.

**FMMD 8023 - Fort Collins Family Med AI (8 Credits)**

We provide students with exposure to full scope family medicine. Our Sub-I includes 3 weeks of inpatient medicine, seeing patients on the medicine, peds and Ob services. There is 1 week of outpatient, where Sub-Is will see adults, children, and prenatal patients; and do nursing home visits, procedures, and other specialty care clinics.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8024 - NCFM – Wray Med/Ob AI (8 Credits)**

Students work with family medicine faculty & residents while acting as the primary provider for several patients daily. Students see patients & assist team, while longitudinally participating in the care of patients between the ED, hospital, labor & delivery, and clinic. Requires commitment to participating in care over multiple settings. Pre-requisite: Open to students interested in pursuing a career in family medicine with specific interest in full-spectrum and rural family medicine.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8025 - NCFM – Sterling Med/OB AI (8 Credits)**

Students work with family medicine faculty & residents while acting as the primary provider for several patients daily. Students see patients & assist team, while longitudinally participating in the care of patients between the ED, hospital, labor & delivery, and clinic. Requires commitment to participating in care over multiple settings. Requisite: Open to students interested in pursuing a career in family medicine with specific interest in full-spectrum and rural family medicine.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8100 - FMMD Elective Away (4-8 Credits)**

This Family Medicine elective will be held at a site in Colorado or another state. Students must obtain departmental approval one month prior to the start. 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**FMMD 8600 - Research in FMMD (4-24 Credits)**

Students may participate in scholarly work directed by specific Family Medicine faculty members including practice-based research, curriculum development, patient education projects, and other scholarly activities. A DFM, MSA or research mentor must supervise and are responsible for evaluations.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**IDPT 5000 - Foundations Doctoring I (2 Credits)**

The course is designed to expose students to basic clinical skills necessary for physicians. Each week, students spend one afternoon either learning communication/physical exam skills/professionalism on campus or practicing their clinical skills with a preceptor off campus.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 5001 - Human Body (7 Credits)**

Human Body covers the anatomy and embryology of the back, extremities, trunk, head and neck. Students will dissect human cadavers and study computer generated cross-sections and radiological images. Clinical case discussions will be integrated with physical exam material.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 5002 - Molecules to Medicine (8 Credits)**

Molecules to medicine is an integrated approach to cell biology, biochemistry, molecular biology and human genetics presented in a context that emphasizes clinical issues.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 5003 - Blood and Lymph (4 Credits)**

Blood and Lymph covers the basic and clinical concepts underlying immunology, hematology, rheumatology, and malignancies of the blood. Histology, genetics, biochemistry, and ethical issues are integrated into the course concepts. Contact hours are divided equally between lecture and discussion groups.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 5004 - Disease and Defense (5 Credits)**

Course covers principles of biometrics, pharmacology, pathology and infectious disease. Topics include mechanisms of tissue damage and repair.

Dermatology is presented as an "Organ System", including structural and function, pathology, pathophysiology and pharmacology.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**IDPT 5005 - Cardiovascular/Pul/Renal (9.5 Credits)**

Course is an interdisciplinary approach to the cardiovascular, pulmonary, and renal systems, including anatomy, histology, physiology, pathophysiology, pathology, pharmacology, and development. Emphasis is on how the major organs work together to regulate blood pressure and fluid, electrolyte, and acid-base balance.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IDPT 5006 - Leading with Emotional Intelligence for Physicians (1-2 Credits)**

This course will engage current medical students in active learning of the knowledge, skills, attitudes and behaviors necessary for embracing conflict and ensuring success and happiness as a 21st Century physician leader. Students will learn how to improve their emotional intelligence and conflict management skills.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5010 - First Course (1 Credit)**

This immersive course provides students with basic tools needed to begin medical school with confidence and success. It will encourage curious, life-long learning, foster commitment to serve the profession, our patients & society, and begin the development of physician leaders capable of transforming the health of diverse communities.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5011 - Biomedical Innovation and Entrepreneurship (2 Credits)**

This course will introduce medical students to the principles & practice of healthcare innovation & entrepreneurship.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5012 - Introduction to Global Health Research (1-2 Credits)**

This seminar series is open to medical students and CHA/PA students in the Global Health Track. Topics include pre-travel health and safety considerations, ethical issues in global health, human rights and health, as well as research and philosophical tools for culturally appropriate care in a sustainable fashion. The class is required of Global Health Track Students. The University of Colorado requires that all Medical Students planning a global health project for their MSA be in the global health track and participate in this course.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5013 - Medical Spanish (FCB) (1-2 Credits)**

.Course seeks to increase FCB 1st yr Med student comfort level interacting with Spanish-speaking patients. It is intended to be a precursor to clinical or community settings with Spanish-speaking patients. Hope to introduce students to the work done at CSU satellite campus in Todos Santos.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5014 - Narrative Medicine: Digital Stories and Community Engagement (1-2 Credits)**

After introduction to digital storytelling basics from experts, learners will create their own stories to practice the skills of making a narrative video & appreciate & honor the vulnerability inherent in sharing a personal story.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5016 - Foundational Principles (9 Credits)**

Introductory science content is encapsulated into a solid foundation upon which to construct more complex medical sciences knowledge while advancing students' professional competencies. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5017 - Hematologic & Lymphatic Systems (5 Credits)**

This course focuses on the basic science and clinical concepts underlying the origin, development, normal function, and related hematologic and immunologic disease states. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5018 - Gastrointestinal System (7 Credits)**

Clinical and basic science topics related to the normal function and diseases of the gastrointestinal tract and accessory organs will be merged with an overview of nutrient metabolism. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5019 - Pulmonary & Cardiovascular Systems (10 Credits)**

Fundamentals of physiology, pharmacology, immunology, and anatomy will dovetail into the pathophysiology of pulmonary and cardiovascular diseases to facilitate diagnosis and treatment. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5020 - COMPASS (1-2.5 Credits)**

COMPASS is a program developed to inspire and support students in maximizing their personal and professional potential. Students will complete comprehensive assessments of their clinical skills and medical knowledge and participate in activities and coaching to support their own professional growth and development.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**IDPT 5021 - Renal & Urinary Systems (7 Credits)**

This course encompasses normal physiology, histology and anatomy as well as the pathophysiological dysfunction and pharmacology of the renal & urinary systems. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5022 - Nervous System (8 Credits)**

A foundational, interdisciplinary approach to nervous system structure and function in health and disease will include neuroanatomy, pathophysiology, and pharmacology, among others. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5023 - Musculoskeletal & Integumentary Systems (7 Credits)**

This interdisciplinary course incorporates the anatomy, physiology and histology of skin, muscle, bone, peripheral nerves, cartilage, and ligaments with associated clinical conditions. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5024 - Mind & Behavior (5 Credits)**

This course introduces the interplay between the biological, developmental, environmental, and psychological processes underlying human behavior, cognition, and emotions. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5025 - Endocrine & Metabolic Systems (7 Credits)**

Biochemistry, pathology, physiology, immunology, and pharmacology are combined with the clinical approach to diagnosis and treatment of disorders of the endocrine system. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5026 - Reproductive System & Life Cycle (9 Credits)**

The development, physiology, pathology, and pharmacology of the male and female reproductive systems are addressed along with changes in health and wellness across the lifespan. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5027 - IHI Open School Basic Certificate: Introduction to Global Health (1-2 Credits)**

Earning the IHI Open School Basic Certificate in Quality and Safety boosts your knowledge and skills — and proves to educators and residencies you are serious about changing health care for the better. To receive the Certificate, you must complete the following 13 Open School courses: QI 101 – Q105, PS 101–105, TA 101, PFC 101, and L 101.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5028 - One Health Elective (FCB) (1-2 Credits)**

One Health is a transdisciplinary concept that focuses on issues at the intersection of Human, Environmental, and Animal Health. The One Health Practicum will bring together groups of interdisciplinary undergraduate, graduate, and professional students to evaluate real-world One Health challenges in the City of Fort Collins.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 5029 - S.A.B.E.S. Spanish Acquisition Begets Enhanced Service (2 Credits)**

Students will learn and practice the language skills they need to communicate effectively with their Spanish speaking patients. The course is delivered in a hybrid format that allows students to complete weekly lessons and quizzes at their own pace and then join the live (synchronous) online sessions to practice the Spanish they are learning in the lessons.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**IDPT 5030 - Anatomy Autopsy Dissection (3 Credits)**

Gain hands-on gross anatomy experience through cadaver dissection using a modified En Masse Autopsy Protocol. After organ bloc removal, students will complete additional dissections to expose key structures and relationships in the gastrointestinal, cardiovascular, pulmonary, urinary, reproductive and musculoskeletal systems. Pre-requisite: Students must have completed the Plains year and successfully passed each of the following 1st year courses with a significant gross anatomy component (GI, PCV, Neuro, MS-I) and successfully passed the anatomy lab practical exams in Compass 2, 3, and 4.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5037 - History of Race in Medicine (2 Credits)**

This course analyzes the history of medical racism from the colonial period to the present. Using secondary sources from medical historians and 1910 Flexner Report, the course will explore how slavery and systemic racism influenced medical education for minoritized populations, specifically Black Americans. Students will use critical race theory as a theoretical framework critically analyze the construction of medical education for Black students within the historical context of the time period.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5090 - Mentored Scholarship I (1 Credit)**

A four year requirement for students to pursue and complete a mentored scholarly project and a capstone presentation. Project can be in one of the following thematic areas: basic and clinical research; epidemiology and public health; humanities and social sciences.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 5094 - Research Track Plains Elective (1-2 Credits)**

The goals of the Research Track are: 1) to foster student development of an identity as a physician capable of being deeply involved with and completing research efforts and for graduates to acquire the knowledge and skills to successfully complete the components of a research project. This elective is only for students who have been accepted into the Research Track in the first trimester.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 5095 - Research Track Phase I (1 Credit)**

Students complete training in citation manager software and initiate mentor-guided research. Prerequisite: Required if enrolled in Research Track. Instructor consent required. Course Restrictions: Must be a Research Track Student, this course replaces Mentored Scholarship requirement.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5096 - Summer Research Phase I (1 Credit)**

This course is for students desiring to do research at CU or other institutions during the summer in between first and second year.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5200 - Introduction to Global Health (1-2 Credits)**

This one-credit course is designed to introduce clinicians in training to critical topics in global health. The course consists of lectures and group discussions lead by experts in a variety of global health-related diseases, public health priorities, and health policy issues.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**IDPT 5600 - Topics in Biomedical Science and Research (4 Credits)**

Research internship for undergraduate fellows in Graduate Experiences for Multicultural Students (GEMS) Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**IDPT 6000 - Foundations Doctoring II (2 Credits)**

This course is the second year of the longitudinal Foundations of Doctoring curriculum. Each week, students spend one afternoon either learning communication/physical exam skills/professionalism on campus or practicing their clinical skills with a preceptor off campus.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6001 - Nervous System (7.5 Credits)**

Course covers the gross and microscopic anatomy of the nervous system, basic neurobiology and neurophysiology, pharmacology, neuropathology, and basic neurologic and psychiatric examination skills. Emphasis is on the relationship between basic processes and functional systems to clinical phenomena and behavior.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 6002 - Digest/Endo/Metaboli Sys (9.5 Credits)**

This interdisciplinary course integrates clinical and basic science topics related to the normal function and diseases of the gastrointestinal and endocrine systems. The biochemistry and physiology of nutrient metabolism in health and disease will also be covered.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 6003 - Life Cycle (5 Credits)**

Course provides an interdisciplinary approach to the normal biology and pathobiology of the male and female reproductive systems, reproduction and pregnancy, the fetus, newborn and child, aging, and end of life. Clinical cases and physical examination will be integrated throughout.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 6004 - Infectious Disease (4.5 Credits)**

This course integrates microbiology, infectious diseases, and antimicrobial pharmacology. Content covers pathogenic microorganisms (bacteria, viruses, fungi and parasites), host-pathogen interactions, microbial virulence determinants, host immune responses, signs and symptoms of disease presentation, epidemiology, laboratory diagnosis, prevention (vaccines) and therapy (antimicrobials).

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 6006 - Obesity and Cardiovascular Disease (1 Credit)**

The course will cover how obesity relates to cardiovascular disease including basic and clinical mechanisms on the pathophysiology of vascular biology, insulin resistance, risk factors, and outcomes, and how therapeutic interventions modify cardiovascular disease risk. Requirements: Course will span two semesters, Fall and then Spring

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**IDPT 6010 - Spark Patient Change with Motivational Interviewing (1 Credit)**

Students will learn and practice practical techniques to motivate patients to change their behaviors (e.g. smoking cessation, healthy eating, physical activity). This elective will help students prepare for patient interviews during preceptor, clinical rotations, and their future career. Course available to Phase I and II students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 6020 - Community Engagement Innovation (1 Credit)**

Transform the community into a classroom by partnering with community organizations to learn advocacy, population health, leadership, cultural competence and resilience. Students will work with the community—instead of for or in the community—with experiential learning supplemented by guided reflection, coaching, and peer-led workshops.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall, Spring, Summer.

**IDPT 6090 - Mentored Scholarship II (1 Credit)**

A four year requirement for students to pursue and complete a mentored scholarly project and a capstone presentation. Project can be in one of the following thematic areas: basic research, clinical research, epidemiology and public health, humanities and social sciences.

Grading Basis: Medical School

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**IDPT 6094 - Master Degree Extended Study Course (1 Credit)**

A scholarly project approved by the Master's committee to act as a capstone for students obtaining the Master's in Medical Science degree. Pre-requisite: Completion of Phase 1 and Phase 2 of the SOM curriculum successfully.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 6095 - Research Track Phase II (1 Credit)**

1. Demonstrate progress towards the completion of your research project and publicly communicate understanding of the project to others a. Present WIP to peers and faculty in an oral presentation b. Effectively respond to comments and questions from peers about your research efforts c. Identify scientific questions when others present Prerequisite: Required if enrolled in Research Track. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6613 - Culinary Medicine Elective (1 Credit)**

Medical students will work along side culinary students in the kitchen for hands-on culinary and nutrition training. In addition to preparing recipes and discussing various aspects of the recipes, students will also complete modules, readings and discussions about a variety of nutrition topics and nutrition-related diseases.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6614 - Introduction to Clinical Ultrasound (1 Credit)**

Students will be introduced to ultrasound scanning techniques to perform four of the primary clinical ultrasound exams - gallbladder, heart, aorta, soft tissue/musculoskeletal. Online modules and hands-on practice will be used in this course. Course restricted to Phase II students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6618 - Charting Your Career Path (1 Credit)**

The course is based on vocational theory and includes opportunities to learn about yourself and your interests, values, personality, and skills to support career decision-making. Students will take the Myers-Briggs Type Indicator, complete self-assessment activities on the CIM website, and explore career options through shadowing. Phase I students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6619 - LGBTQ Health and Healthcare (1 Credit)**

The course provides health professional students the basic knowledge and skills to provide culturally responsive, clinically competent care to lesbian, gay, bisexual, and transgender (LGBT) patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6621 - Fun History of Medicine (1 Credit)**

During "History of Medicine for the 21st century: adding historical perspective to today's medical practice"; students will acquire and apply historical knowledge to provide answers to clinical cases from different historical periods; in an interactive, fun and engaging learning environment. Requisite: Can enroll in Fall and Spring or only one of the two semesters. Phase I & II students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6623 - Refugee and Immigrant Health I (1 Credit)**

Students will learn about the integration process that refugees go through and common medical and mental health diagnoses they receive.

Discussions, panels, and lectures will prepare students to provide culturally effective medicine to any population.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6625 - Personalized Medicine in Health Care (2 Credits)**

This interactive seminar series will introduce the concepts of "big data" applied to research, health care and education. Participants will gain a basic understanding of this rapidly emerging field through discussion and exploration of examples and critical issues with campus analytics leaders.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6627 - Directed Study Basic Science (1-24 Credits)**

This course provides an opportunity for medical students to further develop and refine their knowledge of the basic sciences. Prereq: Course director approval required.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 6629 - Sabes Spanish Immersion (1 Credit)**

SABES is a student-led course that meets on campus, October through mid-March. Sessions focus on improving vocabulary and grammar and strengthening medical Spanish language skills. There are 4 classes, to accommodate all ability levels. Students have the opportunity to practice taking medical histories with native Spanish speakers.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6630 - Spanish Interpretation (1 Credit)**

This course is for Phase I & II students. This course will equip students who have prior Spanish proficiency with vocabulary, skills, and ethical practices of Spanish medical interpretation. Students partake in a 10-week course, and if they successfully pass the certification exam, will interpret in the student-run DAWN Clinic. Requisite: Must pass proficiency exam or have successfully completed the SABES course.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6631 - Mindful Living: Practice of Purposeful and Non-Judgment (1 Credit)**

This course is designed to explore the meaning of mindfulness in everyday life by developing self-awareness, emotional resilience, appreciation of life, and a sense of well-being. Students participate in activities such as meditation, reflective journaling, discussion, and applying mindfulness to music, nature walks, and relationships. Phase I & II students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

## IDPT 6636 - Summer Preceptor Exp (1 Credit)

The Summer Preceptorship is a clinical elective designed for students between their first and second year of medical school. It may take place in the hospital or in a clinic one afternoon or morning a week during the summer semester. Course requirement: Course director approval required to add course.

Grading Basis: Medical School

Typically Offered: Summer.

## IDPT 6637 - LEADS 1 (2 Credits)

Max: 20. The course will include monthly seminars and be divided into four thematic sections. Seminar speakers are primarily engaged in leadership/advocacy work in health care. The themes will be further explored by case-based, small group sessions. Elective required for LEADS scholars.

Restrictions: Phase 1 students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## IDPT 6647 - LEADS 2 (1 Credit)

Advocacy and Leadership skills applied in case-study. Prereq: IDPT 6637 LEADS 1-Spring Semester Elective. Elective Restrictions: Students who wish to enroll without having completed the spring course in Phase 1 may petition to course director if space allows. Phase 2 students only. 9 wks. Min:10 Max: 20.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

## IDPT 6652 - Key Cncpt Ped Dsablty 3 (2 Credits)

Grading Basis: Letter Grade

## IDPT 6655 - Asst Tech: Assess Incl I (2 Credits)

Grading Basis: Letter Grade

## IDPT 6660 - Leadership Competencies for Physicians (1 Credit)

This course will engage current medical students in active learning of the knowledge, skills, attitudes and behaviors necessary for embracing conflict and ensuring success and happiness as a 21st Century physician leader. Students will learn how to improve their emotional intelligence and conflict management skills.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

## IDPT 6665 - Introduction to Global Health (1 Credit)

This course, required for Global Health Track students, gives a broad overview of important issues in global health, e.g., the HIV epidemic, maternal-child health, humanitarian assistance, clean water and sanitation. Pass/fail based on attendance and final project (1- pager).

Grading Basis: Medical School

Typically Offered: Fall.

## IDPT 6667 - Global Health Studies (US) (10 Credits)

Students and their faculty preceptors will develop a global health project focused on research, education, or community health service. After their project with a global health organization, students will provide a written report and an oral presentation of their project. Course restrictions: Must be enrolled in the Global Health Track.

Grading Basis: Medical School

Typically Offered: Summer.

## IDPT 6668 - Global Health Study Aboard (10 Credits)

Prior to travel, students and their faculty preceptors will develop a global health project focused on international research, education, or community health service. After their stay abroad, students will provide a written report and an oral presentation of their project. Course restrictions: Must be enrolled in the Global Health Track.

Grading Basis: Medical School

Typically Offered: Summer.

## IDPT 6669 - Global Health Seminar (1 Credit)

This is a required course for Global Health Track students. This course will help students design and implement their global health projects by addressing the basics of project design, survey development, data collection and analysis.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## IDPT 6671 - Urban Underserved Care (1 Credit)

This course, required for all CU-UNITE Urban Track students, is an introduction to important issues in urban underserved health care. Topics include: health disparities, mental health, substance abuse, and care for specific populations such as the homeless and refugee population. Max 30

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6672 - Urban Underserved Care 2 (1 Credit)**

This CU-UNITE required elective is an advanced course regarding issues in urban underserved health care. Topics: Procedural skills development, an interdisciplinary service learning project in the community, discussion of personal qualities needed for serving urban, underserved populations and provider wellness. Restrictions: Only for CU-UNITE/Urban Underserved Track students.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6674 - Digital MD: Social Media & Scholarship (1 Credit)**

Explore online educational resources, personal branding, and digital professionalism. Participants will gain familiarity with social media networks and develop their own online brand. Capstone includes an online digital scholarship project (e.g. podcast, video, infographic) #MedEd #FOAMed

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 6840 - Independent Study (1-9 Credits)**

Grading Basis: Medical School

**IDPT 7000 - Foundations Doctoring III (0.5-1 Credits)**

This course is the third year of the longitudinal Foundations curriculum. Students spend one afternoon, 2-3 times a month in the office of a generalist or specialist physician. Credit hours by semester = 0.5 summer, 1.0 fall, 1.0 spring.

Grading Basis: Medical School

Repeatable. Max Credits: 2.5.

**IDPT 7001 - Integrated Clinicians 1 (2 Credits)**

Course offered spring semester prior to beginning Phase III clerkship blocks. The course is designed to assist with the transition to the clerkship blocks. Course material will provide students with reinforcement of the fundamental physical exam and presentation skills and important information about the clinical courses.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 7002 - Integrated Clinicians 2 (2 Credits)**

Through didactic and small group sessions, the course will teach advanced clinical skills, translational basic science, and thread material that is vital to doctoring, but underrepresented in the clinical blocks. 1 week.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 7003 - Integrated Clinicians 3 (4 Credits)**

Through didactic and small group sessions, the course will teach advanced clinical skills, translational basic science, and thread material that is vital to doctoring, but underrepresented in the clinical blocks. 2 weeks.

Grading Basis: Medical School

Repeatable. Max Credits: 4.

Typically Offered: Spring.

**IDPT 7005 - Pre-Clerkship Basecamp (4 Credits)**

Prior to beginning clinical clerkships, students will complete the pre-clerkship basecamp where they will solidify and advance their knowledge, clinical reasoning, psychomotor and communication skills for success during their clinical rotations. This course was previously offered as the Integrated Clinicians 1 Course.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 7009 - LGBT Health Elective (8 Credits)**

The course provides health professional students the basic knowledge and skills to provide culturally responsive, clinically competent care to lesbian, gay, bisexual, and transgender (LGBT) patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7010 - Hospitalized Adult Care (16 Credits)**

Eight week block focused on the care of the adult inpatient. Students are assigned to two sites, each for 4 weeks: University of Colorado Hospital, Denver Health, Presbyterian St. Luke's, Veterans Affairs Medical Center, Exempla St. Joseph's, Rose Medical Center.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7012 - Longitudinal Integrated Clerkship (2-6 Credits)**

This is a multidisciplinary course required of students participating in the LIC. Students will be required to manage cohorts of longitudinal patients, participate in projects and small group discussions, engage in reflective practice and complete logging of clinical requirements. Department Consent Required.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.



**IDPT 7013 - Longitudinal Internal Medicine (LIC) (2-6 Credits)**

This course introduces adult medicine with emphasis on acute illness, chronic disease management, and preventive care. Students will combine inpatient and ambulatory experiences. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7020 - Infant/Adolescent Care (12 Credits)**

This block introduces clinical objectives to achieve competency in pediatric medicine, emphasizing illness and wellness of children and families, growth, development, physical and mental well-being. Students combine hospital and ambulatory experiences in Denver and other Colorado communities.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7021 - Musculoskeletal Care (4 Credits)**

This block combines PM&R, Orthopaedics, Rheumatology, basic science, and thread topics to develop competency in history and physical exam skills and the use of laboratory data and basic imaging studies to diagnose, treat, and prevent abnormalities of the musculoskeletal system.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7022 - Longitudinal Pediatrics (LIC) (2-6 Credits)**

This course introduces pediatric medicine, emphasizing illness and wellness of children and families, growth, development, physical and mental well-being. Students combine inpatient, nursery, and ambulatory experiences. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7030 - Obstetrics and Gynecology (8 Credits)**

Students will work in OB/GYN clinics, labor and delivery, OB and GYN wards, and the O.R. They will learn a newborn exam and fundamentals of newborn care. Course offered at University Hospital, Denver Health Medical Center or an AHEC site.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7031 - Emergency Care (4 Credits)**

An introduction to the initial evaluation and management of emergently presenting problems in adults and children. Emphasis on recognition, differential diagnosis, and stabilization of shock and trauma. Students will also be exposed to pre-hospital care and concepts of triage.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7032 - Longitudinal Obstetrics/Gynecology (LIC) (2-6 Credits)**

This course focuses on care of women in OB/GYN clinics, labor and delivery, OB and GYN wards, and the operating room. Additionally, students will learn a newborn exam and fundamentals of newborn care. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7033 - Longitudinal Emergency Med (LIC) (2-3 Credits)**

This course will provide an introduction to the initial evaluation and management of emergently presenting problems in adults and children. Emphasis will be on disease recognition, differential diagnosis, and stabilization of shock and trauma, as well as pre-hospital care and concepts of triage.

Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**IDPT 7040 - Psychiatric Care (8 Credits)**

Students will work closely with attendings and residents to care for adults and/or children. Students have a choice of twelve (12) unique clinical settings including emergency department, consult service, inpatient and outpatient.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7041 - Neurologic Care (4-8 Credits)**

Students will participate in the diagnosis and treatment of patients with a wide variety of acute and chronic neurologic disorders. Formal teaching is provided in Attending Rounds, student seminars, resident seminars and departmental Grand Rounds.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7042 - Longitudinal Psychiatry (LIC) (2-6 Credits)**

This course will focus on psychiatric care of adults and children, and clinical experiences will include ambulatory settings, inpatient units, psychiatric emergency room, consults, and psychiatric specialties. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7045 - COVID Elective (1-8 Credits)**

This 2-4 week elective utilizes a combination of online modules, virtual sessions, and service learning, research, education, or narrative component to help students learn and apply concepts around the COVID-19 pandemic to immediately care for patients and assist in community efforts to mitigate adverse consequences of emerging diseases. Crosslisted as IDPT 8045.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**IDPT 7050 - Peri/Operative Care (16 Credits)**

While gaining experience in surgery and anesthesiology, students study surgical diseases and participate in the operative care and delivery of anesthesia during the peri-operative period. Assessment and management of common inpatient and ambulatory procedures are emphasized from initial patient referral to discharge.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7052 - Longitudinal Surgery (LIC) (2-6 Credits)**

This course focuses on surgical diseases. Students will participate in operative care and peri-operative care. Assessment and management of common inpatient and ambulatory procedures are emphasized from initial patient referral to discharge. Students will combine ambulatory, inpatient and operating room experiences.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7054 - Interventional Radiology - (Denver Health) (8 Credits)**

A hands on clinical rotation with the IR section at Denver Health. This rotation exposes students to all aspects of IR including procedural skills, patient encounters, and targeted medical imaging interpretation. A useful course for students entering any field that interact with IR, as well as students considering a career in Radiology.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7055 - Telehealth Selective Rotation (8 Credits)**

An exploratory course offering a broad array of telehealth experiences such as virtual urgent care, psychiatry, dermatology, stroke. Opportunities will be offered for independent study, scholarly projects and inclusion in business and innovation aspects of telehealth. Prerequisites: Pre-Clinical Rotation Coursework Complete.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7056 - Emergency Medicine Elective for Phase 3 Students (8 Credits)**

A 4 week course designed to enhance a students knowledge regarding emergency medicine by completing clinical shifts in multiple emergency departments. In addition, students will complete shifts with other subspecialty and adjunct services which help provide care for patients in the emergency department.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7057 - Integrative Musculoskeletal Medicine (8 Credits)**

This course includes experiences in: PM&R, rheumatology, primary care sports medicine, radiology and will focus on outpatient MSK care including patient presentations, exam, testing and treatment. Managing MSK conditions is essential for practice in internal medicine, family practice, emergency medicine, pediatrics, among others.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7058 - Ophthalmology (8 Credits)**

This course is intended to introduce medical students to the clinical practice of ophthalmology. The course will provide exposure to numerous subspecialties within the field, allowing students to shadow within ophthalmology departments at the University of Colorado, Children's Hospital, the VA, and Denver Health. Prerequisites: Phase III Students Only.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7059 - Anesthesiology Selective (UH) (8 Credits)**

Students will gain knowledge and skills related to the clinical practice of anesthesiology working as part of the anesthesiology team. Knowledge gained will pertain to pre-operative assessment and optimization, intraoperative and post-operative care. Skills gained will relate to vascular access, airway, pressors, ventilators and more.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7062 - Longitudinal Family Medicine (LIC) (2-6 Credits)**

This course focuses on broad spectrum family medicine including acute and chronic ambulatory care, hospital care, and obstetric care of adults and children. Students will participate in the provision of comprehensive patient-centered primary care and will focus on the longitudinal acute and chronic disease management, prevention and health. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7070 - Community and Primary Care (16 Credits)**

Students will be immersed in a primary care setting and experience a broad scope of care in the context of the communities in which patients live.

This course emphasizes ambulatory clinical skills, patient-centered care, critical appraisal and application of national screening guidelines, and inter-professional collaboration.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7075 - VA Sequential Training Program (1-2 Credits)**

The VA Sequential Training (VAST) Program is a 6-month clinical immersion with mixed-methods educational content focused on professional identity development, resiliency, and unique skills needed to successfully care for a Veteran population.

Grading Basis: Medical School

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**IDPT 7080 - Integrated Longitudinal Medicine Clerkship (16-32 Credits)**

The ILMC is a unique 16-week longitudinal clerkship allowing students to fulfill competencies for HAC, AAC and the RCC blocks in one continuous teaching site. Students spend 12 weeks at one learning site preceded by an initial month of HAC in the Denver metropolitan area. Requisite: This course is a longitudinal clerkship integrating components of the Phase 3 HAC, AAC and RAC blocks. Students must be eligible for Phase 3 clerkships. Students must be approved by course director to take the course.

Grading Basis: Medical School

Repeatable. Max Credits: 32.

Typically Offered: Fall, Spring, Summer.

**IDPT 7085 - Integrated Longitudinal Medicine Clerkship (2 Credits)**

This is a multidisciplinary course required of students participating in the ILMC. Focus will be on supervised self-directed and team learning, community involvement, and provision of health care within a community.

Grading Basis: Medical School

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**IDPT 7090 - Mentored Scholarship III (1 Credit)**

A four year requirement for students to complete a mentored scholarly project and capstone presentation. Projects can be in one of the following thematic areas: basic research, clinical research, global health, epidemiology and public health, humanities and social sciences.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 7095 - Research Track Phase III (1 Credit)**

Students clarify and plan Phase IV process for completing Research Track requirements. Prerequisite: Required if enrolled in Research Track. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 7101 - Clinical Practice Exam (CPE) Formative (1 Credit)**

To advance to Phase IV, students must complete all required Phase III clerkships with passing grades, must complete the required Longitudinal Curriculum elements, the formative CAPE assessment, and successfully pass or remediate the Clinical Practice Exam (CPE).

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7102 - Clinical Practice Exam (CPE) Summative (1 Credit)**

To advance to Phase IV, students must complete all required Phase III clerkships with passing grades, must complete the required Longitudinal Curriculum elements, the formative CAPE assessment, and successfully pass or remediate the Clinical Practice Exam (CPE).

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring, Summer.

**IDPT 7160 - Philosophical Foundations of Research Ethics (2 Credits)**

This course will examine the philosophical basis for current research ethics practices, address current ethical issues and controversies in biomedical research, and provide students with knowledge and analytical skills to address the ethical dimensions of biomedical research. Crosslisted: CLSC 7160

Grading Basis: Letter Grade

Typically Offered: Spring.

**IDPT 7200 - Scientific Writing for Doctoral Students (2 Credits)**

Scientific writing course for students engaged in research. Focuses on critical thinking, analytical writing, and oral presentation. Taught as a writing workshop, the course emphasizes effective communication with both professional and non-technical audiences. Restrictions: Must have passed preliminary examination; permission of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IDPT 7301 - Introduction to Life Science Technology Commercialization (1-3 Credits)**

Course designed to familiarize graduate level engineering, business, law, science students with fundamentals of life science technology commercialization including drugs, devices, diagnostics, healthcare IT and platform applications. Three consecutive, 5-week classes, each 1 credit. Open to all graduate level students.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring.

**IDPT 7610 - Phcl & Anat of Cntral Nerv Sys (1 Credit)**

Grading Basis: Letter Grade

**IDPT 7628 - Gerontological Pharm (2 Credits)**

Grading Basis: Letter Grade

**IDPT 7630 - Detertn Prima Struct Biomolecl (4 Credits)**

Grading Basis: Letter Grade

**IDPT 7640 - Molecular/Cell/Dev/Endo (3 Credits)**

Grading Basis: Letter Grade

**IDPT 7642 - Introduction to Laboratory Animal Research (1 Credit)**

Provides basic knowledge on the use of laboratory animals, animal welfare and animal models. Includes general concepts on animal biology and husbandry for most common laboratory species and incorporates essential principles of anesthesia, analgesia, surgery and peri operative care.

Grading Basis: Letter Grade

Typically Offered: Summer.

**IDPT 7646 - Tissue Biology and Disease Mechanism (3 Credits)**

This course provides an overview of organ systems and through 1) a survey of the major systems, including the cellular and molecular mechanisms underlying their function and repair, integrated with 2) common diseases, current therapies, and their mechanistic basis. Prereq: IDPT 7811, 7812, 7813, 7814, 7815 (BIOM Sci Core Courses).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IDPT 7651 - MSTP Summer Research Rotation (1-3 Credits)**

This course is an 8-10 week laboratory rotation experience in an MSTP training laboratory. Prereq: Acceptance into the MST Program and permission of MSTP Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**IDPT 7656 - MSTP MSIII Clinical Interval (1-3 Credits)**

Course restricted to MSTP MSIII students for clinical gap intervals. Prerequisite: MSTP director approval required. Instructor consent required

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7727 - Directed Study Clinical Sci (4-24 Credits)**

This course provides an opportunity for medical students to further develop and refine their knowledge of the clinical sciences. Course will include scheduled study time, regularly scheduled practice exams, tutoring in clinic content and test taking strategies. Prereq: Course Director approval required to add.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 7777 - Off Time (0 Credits)**

Grading Basis: Non-Graded

Repeatable. Max Credits: 24.

**IDPT 7850 - Independent Study in Bioethics, Medical Humanities or Health Law (1-6 Credits)**

Course is designed to meet the needs of students interested in conducting advanced studies of issues and topics in bioethics, medical humanities, or health law. Students will work under the direction of the course director on a specific research topic. Course Restrictions: Permission of the instructor. Repeatable for credit within the degree program, but not within the same term. Max credits - 6.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IDPT 8000 - Foundations Doctoring IV (2-4 Credits)**

2.0 cr. Summer, 4.0 Fall and Spring. This course continues the established student-preceptor relationship from the FDC course. Students attend their preceptor office 2-3 times per month. Students will work with a panel of patients or families serving as their physician under the supervision of their preceptor. Prereq: IDPT 7000.

Grading Basis: Medical School

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring, Summer.

**IDPT 8001 - Tutoring in Clinical Skills (2 Credits)**

Fourth year students are trained to be tutors and utilize these skills with pre-clerkship students developing their physical exam, communication and clinical reasoning skills.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**IDPT 8003 - Geriatrics (4-8 Credits)**

2-4 wks. Max: 2. Geriatrics elective will provide clinic exposure to caring for older adults in the outpatient primary care and sub-acute rehab settings. Learning objectives focus on the special needs of frail or chronically ill older adults and resources beyond direct physician care utilized for this population.

Grading Basis: Pass/Fail with IP

**IDPT 8004 - Integrated Clinicians 4 (4 Credits)**

Through didactic and small group sessions, the course will teach advanced clinical skills, translational basic science and thread material that is vital to doctoring, but underrepresented in the clinical blocks. 2 weeks.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 8005 - Integrated Clinicians 5 (4 Credits)**

ICC 5 is a required Phase IV course that will provide you with essential learning opportunities to begin residency and your career to include ACLS, legal malpractice, teaching skills, finance, leadership skills and specialty specific clinical reviews. 2 weeks.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 8007 - Medicine/Pediatrics (4-8 Credits)**

2 or 4 wks. The focus of this elective is to help students discern whether to pursue combined residency training in Internal Medicine and Pediatrics. This course will expose students to possible career paths available for Med-Peds providers within primary and specialty care settings.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

**IDPT 8011 - Clinical Nutrition (4 Credits)**

2 wks. Max:1. Develop your nutrition assessment skills with this elective, tailored to your needs with adult and/or pediatric inpatients and/or outpatients with a variety of conditions and diseases. Active learning with exceptional mentors is emphasized.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.



**IDPT 8014 - Global Health US Project (8-16 Credits)**

4-8 wks. Max:20. This course is the continuation of IDPT 6667 & 6668. Students will undertake a global health project at a US-based site under the supervision of their designated mentor and local supervisors. Restrictions: Course director approval required to add course.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

**IDPT 8015 - Global Health Intl Project (8 Credits)**

This course is the continuation of IDPT 6667 & 6668. Students will undertake a global health project at an international site under the supervision of their designated mentor and local supervisors.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 8016 - Physician as Educator (2 Credits)**

This elective is intended to develop your skills as an effective teacher in clinical and classroom settings. This will include participation in evening teaching workshops and co-precepting.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**IDPT 8018 - Global Health & Disaster (4 Credits)**

This international health course is a two week training offered once a year as part of the University of Colorado School of Medicine Global Health Track. This course prepares its participants for international experiences and future global health work.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 8019 - Team-based Clinical Care (2 Credits)**

A longitudinal, interprofessional course consisting of three activities including Voice of the Patient (opportunity to learn about the patient experience in healthcare), Adverse Event Review (opportunity to analyze a patient safety event), and an Executive Summary Analysis (allowing students to analyze a healthcare system inefficiency).

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**IDPT 8020 - Physician as Advisor (2 Credits)**

1 wk: Physician as Advisor teaches fourth year students to advise peer students in an Advisory College Program. It will prepare students for careers in academic medicine by developing skills in advising, leadership, and administration as well as self-assessment. Longitudinal course that can conflict with other courses. This is a 2 semester course and each semester counts for 2.0 credit hours. Prerequisites: Fourth year standing and selection as a "Student Advisor" in the Advisory College Program.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 8021 - Costa Rica Spanish Immersion (4-8 Credits)**

This capstone Spanish immersion course in Costa Rica includes home stays, intensive language instruction and public health and community outreach activities in under-served communities. Student should be passionate about providing care to disadvantaged patients in the USA or abroad and committed to improving their Spanish language skill. Requisite: Contact course coordinator for information. Department Consent required.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8022 - Clinical Medical Spanish (8 Credits)**

Clinical Medical Spanish is a local near-immersion experience in medical Spanish, consisting of classroom instruction in medical Spanish and immersion experiences with various Spanish speaking staff in the health care professions.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 8023 - Refugee Health II (4-8 Credits)**

Refugee health II will provide students with exposure to the social factors which impact upon the health of refugees in the Denver metro region. Students will work with agencies providing services to refugees and participate in home visits and outreach activities within community settings.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 8024 - Leadership Reading Elective (8 Credits)**

This online reading elective is divided into 4 one-week modules and is designed to strengthen a student's understanding of leadership and how it impacts patient care, professionalism, and medical organizations.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8025 - Clinical Ultrasound-Emergency Department-DHHA (4 Credits)**

Clinician-performed US is an integral skill in many specialties. This elective enables students to gain valuable skills in acquisition and interpretation of bedside US exams. This elective involves didactic and hands-on educational opportunities. Students are required to participate in 2 scanning sessions for the SOM US curriculum. Hands-on bedside ultrasound scanning, didactic sessions, video review.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8026 - Critical Care & Procedural Skills (2-4 Credits)**

Formerly EMED8007. Students will participate in an intensive 2-week elective with performance-based, hands-on training in 4 procedural skill areas: airway management, laceration repair, fluid sampling, and vascular access. Students will also complete training in management of critically ill patients using procedural skills and simulated patients. Department Consent

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**IDPT 8027 - Race in Medicine (4 Credits)**

This course explores the role of racism and homogenous beliefs/values in medicine and how cultural incompetence perpetuates health disparities. Students learn about race as a social construct, theories related to class, and the impact of unconscious bias on health outcomes. The class urges students to confront discomfort in healthy ways.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8028 - The Business of Medicine (4-8 Credits)**

This interactive course enhances students' Healthcare System Literacy, i.e. understanding how healthcare is structured, financed, and regulated. With micro- to macro-level modules, the course helps prepare students for personal practice challenges as well as for improving healthcare more broadly.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**IDPT 8029 - Trek Integrated Critical Care (8 Credits)**

Course combines clinical, didactic, and Sim to teach the foundations of critical care medicine, focusing on day-1 intern readiness and creating well-rounded physicians. Topics covered include "sick vs not sick", initial patient stabilization, circulatory and respiratory failure, mechanical ventilation, and common ICU procedures. Only for Phase IV students that have completed their required Acting Internship.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 8030 - Laboratory Medicine (8 Credits)**

Lecture-based elective provides a comprehensive overview of Clinical Pathology and laboratory testing. It reviews biochemical, physiologic, and pathologic phenomena on which laboratory tests are based and emphasizes approaches to the ordering, interpretation, and pitfalls of laboratory tests.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 8031 - Genetics and Precision Medicine (8 Credits)**

Genetic and precision medicine is expanding into all aspects of clinical medicine. This course will allow students to delve deeper into this field to be better prepared to practice genomic medicine, manage patients with genetic conditions, and be better prepared to apply emerging therapies (gene therapy, CRISPR, RNA therapies).

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8034 - Virtual Health Center Elective (4 Credits)**

This elective explores the use of virtual health in individual and systems level care. Students will gain confidence caring for patients over video, participate in system-wide sepsis care, and explore many unique applications of technology to health care at the Virtual health Center.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8035 - International Experiences (4-16 Credits)**

This course allows fourth year students to complete an international experience at an approved and vetted international site. The experience may include clinical work, language immersion, or a combination of both.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**IDPT 8040 - Physician as Healthcare Improver (2-4 Credits)**

Students complete 16 IHI Open School on-line courses to earn their Basic Certificate of Completion. Course content includes: quality improvement, patient safety, leadership, patient/family-centered care, and managing health care operations. Students also reflect on learning and implications for future career.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 8041 - Quality Improvement Practicum (4-8 Credits)**

Students complete IHI Open School on-line courses in order to provide basic QI Knowledge. Students join an interprofessional team engaged in a quality improvement project.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8045 - COVID Elective (4-8 Credits)**

This 2-4 week elective utilizes a combination of online modules, virtual sessions, and service learning, research, education, or narrative component to help students learn and apply concepts around the COVID-19 pandemic to immediately care for patients and assist in community efforts to mitigate adverse consequences of emerging diseases. Crosslisted as IDPT 7045

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**IDPT 8049 - Multiple Chronic Conditions (8 Credits)**

This course explores current models of care for populations with Multiple Chronic Conditions (MCC), identifies barriers and gaps in current care and systems, and assesses impact of chronicity/disability at population and systems levels.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 8050 - Mental Health-Colorado Springs (4-8 Credits)**

Students will work with a mental health team embedded within a primary care clinic, with a goal of improving primary care provider comfort in identifying and treating common mental health conditions.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8051 - Infectious Diseases - Colorado Springs (4-8 Credits)**

Students work with Infectious Disease clinical faculty seeing patients in C. Springs community-based setting. Students see patients in outpatient clinic, inpatient consultation, and the infusion center. This course is designed for students looking to deepen their understanding of the diagnosis, management, and treatment of acute infection

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8052 - Introduction to Public Health-Colorado Springs (4-8 Credits)**

The principles of Population Health are essential for future physicians to understand. Physicians function within a larger community of allied healthcare providers to include Public Health professionals. Social and ecological factors play a greater role in the health of communities than clinical interventions. Course offered Aug and Oct.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Summer.

**IDPT 8053 - Medical Improvisation (4 Credits)**

The Medical Improvisation elective uses interactive improvisation theater techniques to increase learner ability and confidence in patient-centered communication. Prior research has established Medical Improvisation's suitability for both advanced and beginning clinicians and multiple medical schools have incorporated this curriculum.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8054 - CSB Community Engagement (4 Credits)**

Community Engagement provides CSB students mentorship to guide community-based collaborations and project development. Participants can advance PEAK partnerships or pioneer new collaborations. Quarterly small group "Community Lab" explores goals, outcomes, obstacles, scholarship, and reflection related to community engagement. Requisite: Students must be graduates of the Colorado Springs Branch's COSMIC LIC program as coursework builds off of unique elements of the CSB Phase 3 curriculum.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**IDPT 8055 - Immunology and Immunotherapy (4-8 Credits)**

This course will investigate the cellular and molecular processes necessary to achieve an advanced understanding of how the immune system maintains balance and operates in health and disease. Recent immunotherapeutic advances that have revolutionized treatment options, such as CAR-T and checkpoint blockade, will also be examined. Only for Phase IV students

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8056 - Global Health and Underserved Populations (4-8 Credits)**

This course will cover approaches to optimize medical care of vulnerable groups living in developed (global health without travel) and underdeveloped settings (global health) taking into account large scale forces (social, economic, political) that determine who falls ill and who has access to adequate healthcare. Only for Phase IV students

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8057 - Advanced Neuroscience (8 Credits)**

This course will integrate advanced basic science and clinical science in the field of neuroscience. The curriculum will be designed for direct integration of neuroanatomy, neurophysiology and neuropharmacology with clinical neurology, neurosurgery, neuroradiology, and neuropathology. Only for Phase IV students

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8058 - Connections in Cardiovascular Medicine (4-8 Credits)**

This course is designed for post-clinical year medical students who wish to enhance their ability to utilize basic scientific principles and knowledge in the practice of cardiovascular medicine. Only for Phase IV students.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8059 - Space Med: Human Spaceflight & Medical Risk Assessment (8 Credits)**

Space Medicine: Human Spaceflight Factors & Medical Risk Assessment. This course will focus on the evidence based medicine process to quantify medical risk of both common and space-specific conditions, as well as include a longitudinal curriculum on space medicine, taught by NASA physicians based at the Johnson Space Center in Houston.

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring, Summer.

**IDPT 8090 - Mentored Scholarship IV (1-8 Credits)**

A four year requirement for students to complete a mentored scholarly project and a capstone presentation. Project can be in one of the following thematic areas: basic research, clinical research, global health, epidemiology and public health, humanities and social sciences.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**IDPT 8091 - MSA Phase IV Preparation (8 Credits)**

Students work intensively with mentors on their chosen MSA Project. Students critically review background literature, define a question/hypothesis, develop and implement methods and study design, collect data, analyze and interpret data, and submit written progress reports for their MSA Project.

Prereq: MSA form required. Prior approval of Associate Dean for Student Affairs, Mentor, and Course Director required.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8093 - IDPT Scholarly Activity (8 Credits)**

This course is designed to allow students to complete scholarly work not appropriately covered by other available courses (e.g. MSA work beyond IDPT 8091). 4 weeks. Cannot be taken after section 47. Prereq: Special permission and individual arrangements required in advance. Student must have a faculty/project mentor who will sign off on the project. Student must receive prior approval from Assoc. Dean for Student Affairs.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 8095 - Research Track Phase IV (1-8 Credits)**

Students complete requirements for Research Track which includes submission to a national scientific journal of a first author manuscript which meets mentor-standards as appropriate for submission. Students will present their work at the Capstone event. Prerequisite: Required if enrolled in Research Track. Instructor consent required.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**IDPT 8500 - Independent study in Research or other degree (2-3 Credits)**

This elective allows students either enrolled in a joint degree program (such as MBA/MD or MBIOS/MD) or doing a research fellowship (such as Howard Hughes or Doris Duke) to remain as students and receive malpractice coverage while involved in maintaining clinical skills. Requisite: Consent form Associate Dean of Student Life, School of Medicine Required

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 7.

Typically Offered: Fall, Spring, Summer.

**IDPT 8540 - DH-LIC Capstone Social Medicine (4 Credits)**

A 2 week elective available to alumni of the DH-LIC and required for students enrolled in the DH-LIC Longitudinal Scholarship in Social Medicine Elective. This elective provides in-depth content and expert speakers covering topics in social medicine, disparities, health care systems and public and population health.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8601 - Research Track, Research I (8 Credits)**

The first of two courses for Phase IV Research track medical students. Students are expected to spend full time working on their research project and towards the Track required goals of submitting an abstract and a first-author publication. Limited to and required for Phase IV (MS4) medical students who are in good standing in the Research Track. Course Director approval required. 4 weeks.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 8602 - Research Track, Research II (8 Credits)**

The second of two courses for Phase IV Research Track medical students. Students are expected to spend full time working on their research project and towards the Track required goals of submitting an abstract and a first-author publication. Restrictions: Limited to and required for Phase IV (MS4) medical students who are in good standing in the Research Track. May be repeated once as an elective. Prereq: IDPT 8601. Course Director approval required. 4 weeks.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8610 - Scholar's Year Research (2 Credits)**

This 3-semester longitudinal course is an adjunct to the scholar's year for the work in progress during scholar's year, and requires twice a semester check ins with the Office of Student Life and reflection on career trajectory. Courses to be taken between 3rd year clinical courses and 4th year electives. Requisite: Must have successfully completed all 3rd year courses to enroll

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**IDPT 8640 - DHLIC Longitudinal Scholarship (4-8 Credits)**

A longitudinal elective available to alumni of the DH-LIC aimed at providing in-depth mentored project work and a longitudinal curriculum in social medicine and population health. The longitudinal course will count as a research elective.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 8890 - Clinical Experience for CTSI PhD Students (1 Credit)**

Each student will identify a clinician mentor who will develop/direct clinical experience tailored to student's thesis research. It may include participation in relevant clinical conferences, a direct clinical experience, clinical research, and preparation of a clinical research protocol. Prereq: IDPT 7805 & 7646, EPID 6630, BIOS 6601 or equivalent. Restrictions: PhD Graduate Students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IPCP 5000 - Interprofessional Collaborative Practice (1 Credit)**

This course develops core competencies in teamwork & collaboration for incoming health professions students. Students will learn in Interprofessional teams coached by Interprofessional faculty, develop essential communication skills and processes for simultaneous and sequential teams, and provide feedback on individual and team performance to improve Interprofessional collaboration.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**IPCP 5500 - IP Collaborative Practice & Ed Independent Study (0.5-1 Credits)**

The IPCP 5500 Independent Study, will allow students to explore IPCP content that complements and/or improves their knowledge and understanding of Inter-professional Practice and Education.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**IPHE 5500 - IP Ethics & Health Equity Independent Study (0.5-1 Credits)**

The IPHE 5500 Independent Study, will allow students to explore IPHE content that complements and/or improves their knowledge and understanding of Inter-professional Practice and Education.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IPHE 6000 - IPE Healthcare Ethics & Health Equity (1 Credit)**

Develops foundational knowledge and basic practical skills to identify, analyze, and resolve ethical & health equity issues in clinical practice.

Integrates inter-professional collaboration & teamwork to teach students ethical theory & reasoning, professional ethics and its historical origins, and approaches to health care decision-making.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Fall.

**MEDS 6050 - Mission Medical Clinic Colorado Springs (2 Credits)**

Learn about healthcare for vulnerable patients in Southern Colorado via volunteerism at Mission Medical Clinic, a "free clinic" in Colorado Springs.

Students will serve as volunteer clinicians providing mentored primary care to adults lacking medical insurance.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 10.

Typically Offered: Fall, Spring, Summer.

**MEDS 6620 - Bioethics, Medicine & Health (2 Credits)**

The course explores key problems of bioethics in medicine & health. Moral frameworks will be discussed and critiqued via an engaging, seminar-style format. The emphasis is on practical application to real-life cases via critical reading, writing, and discussion.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 6621 - Geriatric Medicine (2 Credits)**

Aging in America, exposure to geriatric health care ranging from prevention among healthy community dwelling elderly to hospice care for terminally ill in nursing homes. Course requirement: Students must contact the course coordinator two weeks prior to beginning elective.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**MEDS 6623 - Intro Biomedical Research (1-24 Credits)**

Independent study with a mentor of your choice. A short paper on a subject chosen by the student is usually required. Dr. Repine will meet with students interested in a career in academic medicine and/or research.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**MEDS 6625 - Integrative Medicine - Our Patients, Ourselves (2 Credits)**

Through expert guest presentations and class participation, you will become familiar with a wide variety of healing modalities that define Integrative Medicine. In the process, you will acquire the skills of wellness for both yourself and your patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 6626 - Molecular Biology Cancer (1 Credit)**

Provides an overview of molecular events that occur in the cell that relate to the origins of neoplasia. Provides students the ability to understand/interpret literature and an appreciation of how biology impinges on the practical treatment of cancer.

Grading Basis: Medical School

Typically Offered: Fall.

**MEDS 6629 - The Healer's Art (1 Credit)**

The Healer's Art is an innovative Discovery Model Curriculum providing clarification and understanding of our professional lives. We offer a safe learning environment for personal, in-depth exploration of the time honored values of service, healing relationship, compassionate care, and professional development.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 6632 - Literature, Art, and Medicine (1 Credit)**

We will explore the doctor-patient relationship as represented in literature, film, and visual arts. The course is based on intensive reading, group discussion, and reflective and critical writing.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MEDS 7005 - Palliative Care Third Year Selective (8 Credits)**

This is an introduction to hospice and palliative care. Students will explore the physical, social, psychological, and spiritual aspects of patient care for the terminally ill and learn how value-based goals of care are elicited from discussions and acute symptom control in the patient with serious illness.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MEDS 8001 - Medicine AI (8 Credits)**

4 wks. Max:18. This course can meet Sub-I qualifications. The sub-intern functions as an intern and is responsible for the admission, evaluation, and continuing care of patients under the supervision of a Resident and an Attending. Subinternships are offered at DHMC, P/SL, UCH, VAMC, and St. Joseph's Hospital..

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8002 - Hospital Medicine AI (8 Credits)**

Experience hospitalist medicine first hand by working one-on-one with an attending and developing a quality improvement initiative. You will also gain the skills to excel from the start of intern year by being the primary provider for your patients. This Sub-I course meets the CU SOM requirement for graduation.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8004 - Cardiology (8 Credits)**

4 wks. Designed to offer a broad general exposure to adult cardiology, including history, physical examination, and an introduction and review of standard noninvasive testing. Rotations will be at UCH, DVAMC and DHMC with assignments based on timing of request and availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8005 - Cardiac Diagnostic Skills (4 Credits)**

2 wks. Max:6. Course is at Exempla St. Joseph Hospital. Goals are to improve cardiac physical diagnosis skills, interpret EKG findings, recognize abnormal heart sounds and murmurs; and analyze cardiac chest x-ray findings. Includes didactic sessions and home study. Restrictions: Course may only be added during adrop/add time.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**MEDS 8006 - Allergy/Clin Immunology (4-8 Credits)**

4 wks. Max:1. Offered at UH and NJMC. Allergy and clinical immunology with direct patient contact in allergy and immunology clinics. Opportunities to participate in inpatient consultations, observe clinical immunology laboratory techniques, and library research. Prereq: Course Director approval required to add course.

Grading Basis: Medical School

**MEDS 8007 - Clinical Renal (4-8 Credits)**

4 wks. Max:4. A four-week elective course in electrolyte, hypertensive, acute and chronic renal failure, glomerular (including diabetes) disorders, and hospital services. The students will see consults on all services, learn to maintain and analyze flow sheets, and review problems with residents and fellows.

Grading Basis: Medical School

**MEDS 8009 - Clin Infectious Diseases (4-8 Credits)**

2-4 wks. Max:4. UCH and DHMC. Hospital assigned. Hospitalized patients with a variety of infectious diseases are available for study. Diagnosis, pathophysiology, immunology, epidemiology, and management, including use of anti-microbial agents are emphasized. Students attend and participate in ward rounds and conferences. Prereq: Completion of core requirements for 3rd year students. Restrictions: Accept 4th year students only. Note: a 2 week elective maybe available. Student must make arrangements with Student Affairs and be pre-approved by Program Director before being confirmed to take elective course.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

**MEDS 8010 - Clin Gastroenterology (4-8 Credits)**

4-12 wks. Max:2. Students will participate in work up of both hospitalized and ambulatory patients with gastrointestinal (GI) illnesses. GI pathophysiology will be emphasized. Students attend weekly conferences in clinical gastroenterology, radiology and pathology. They are invited to observe procedures. Hospital is assigned.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**MEDS 8011 - Pulmonary Medicine (8 Credits)**

4 wks. Max: 2. UCH, DHMC, and DVAMC. This elective offers broad experience in pulmonary and critical care medicine. Students participate in consultations, attend conferences and clinics. A wide variety of pulmonary and critical care cases are seen.

Grading Basis: Medical School

**MEDS 8012 - Clinical Rheumatology (8 Credits)**

4 wks. Max:1. Students will learn how to recognize, diagnose, and treat common rheumatic disorders. Students will attend all formal teaching conferences in the Division of Rheumatology and attend 6 or more outpatient clinics each week. Prereq: Completion of all third year clerkships.  
Grading Basis: Medical School

**MEDS 8013 - Endocrinology (4-8 Credits)**

2-4 wks. Max:2. Introduction to evaluation and management of endocrine disorders via outpatient clinics and inpatient consults at VAMC, DHMC, and UCH. Endocrine-focused history-taking and physical examination with a complete problem-oriented approach to patient care. Multiple conferences and close interaction with fellows and attendings.  
Grading Basis: Medical School  
Repeatable. Max Credits: 12.

**MEDS 8014 - Hematology / Oncology (4-8 Credits)**

2-4 wks. Max:1. Students are exposed to a wide range of patients seen in consultation for hematologic and oncologic problems. Students may also elect to attend the numerous subspecialty outpatient clinics for patients with various malignancies. Prereq: MED, OBGYN, PED, PSCH 7000.  
Grading Basis: Medical School  
Repeatable. Max Credits: 12.

**MEDS 8015 - Care for the Under-served (8 Credits)**

This elective is for students interested in Internal Medicine and care for under-served populations. Students will rotate in a clinic at Denver Health, the DAWN clinic (student-run clinic for under-served patients), and complete a healthcare disparities project.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall, Spring, Summer.

**MEDS 8017 - Hospice/Palliative Care (4-8 Credits)**

2-4 wks. Max:1. This is an introduction to hospice and palliative care. You will become a member of the interdisciplinary team at the Hospice of Saint John, focusing on the physical, social, psychological, and spiritual aspects of patient care for the terminally ill. Requirement: Contact Dr. Youngwerth one week prior to starting via Email Jean.Youngwerth@ucdenver.edu.  
Grading Basis: Medical School  
Repeatable. Max Credits: 8.

**MEDS 8023 - Medicine Consult (4-8 Credits)**

Medicine Consult is for students interested in learning about medical issues of surgical patients and performing general medical consultations for non-medical services. This elective will be useful to the student interested in a career in hospital medicine or surgical subspecialties. Offered for 2 or 4 weeks. Prereq: 3rd year medicine  
Grading Basis: Medical School  
Typically Offered: Fall, Spring, Summer.

**MEDS 8025 - Medical Oncology (8-12 Credits)**

4-6 wks. Max:2. Students will learn the basic aspects of medical oncology by evaluation of patients in the general oncology and subspecialty oncology clinics. They will attend the weekly multi-disciplinary tumor conferences and fellow didactic conferences.  
Grading Basis: Medical School  
Repeatable. Max Credits: 12.

**MEDS 8029 - Applied Clin Pharmacology (8 Credits)**

4 wks. Min:20/Max:120. This course provides fourth year medical students with a practical approach to the pharmacologic treatment of common clinical conditions. There will be three 1-hour lectures each day, ten additional hours of independent study per week, and a final examination.  
Restriction: Course offered section 37 only.  
Grading Basis: Medical School

**MEDS 8032 - Corrections Health Care (4 Credits)**

2 wks. Max:1. Provide primary care to inmates in corrections facilities. Experiences include manipulative or drug-seeking patients, the interface between health care and the legal system, and issues in correctional health care (ie., HIV, TB). Prereq: One month notice needed to schedule this elective.  
Grading Basis: Medical School

**MEDS 8034 - Critical Care St Joe's AI (8 Credits)**

4 wks. Max:2. This course can meet Sub-I qualifications. Student functions as an intern-equivalent and admits patients during overnight call every third day. Student will attend daily ICU interdisciplinary rounds and enhance skills in reporting, interpreting clinical information, communication, and patient management plans. Student will present an EMB-research clinical question.  
Grading Basis: Medical School  
Typically Offered: Fall, Spring, Summer.

**MEDS 8037 - Medical ICU - UCH (8 Credits)**

This rotation will provide training in the care of critically ill ICU patients. Emphasized skills will include management of respiratory failure, hemodynamic instability, severe electrolyte abnormalities, gastrointestinal emergencies and common ICU procedures. Prereq: Sub I in Medicine or Surgery.  
Grading Basis: Medical School

**MEDS 8038 - CAM Wellness Elective (4-8 Credits)**

2 or 4 wks. Min:2/Max:4. In-depth exploration of CAM therapies and personal wellness will be facilitated through didactic sessions, field trips, online learning, reflection, and self-directed project. Students will work collaboratively in groups and the time will be tailored to individual goals.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**MEDS 8039 - AIDS and American Culture (4 Credits)**

This course approaches HIV/AIDS as a biomedical, social, political and creative phenomenon. We will investigate the discourse and images of AIDS in journalistic writing, autobiography, fiction, poetry, film, television and photography. 2 wks. Restriction: Offered Section 49 only.

Grading Basis: Medical School

Typically Offered: Spring.

**MEDS 8040 - Film and Mental Illness (4 Credits)**

There is a well-documented relationship between movies and psychiatry. How accurate are film depictions of psychiatric conditions? How has cinematic representations shaped our personal responses, cultural beliefs, social policies regarding the mentally ill and those who care for them? 2 wks. Restrictions: Offered Section 43 only.

Grading Basis: Medical School

Typically Offered: Spring.

**MEDS 8050 - Community Hospital Medicine-Colorado Springs (4-8 Credits)**

Students will work with Hosp Med faculty seeing patients on the inpatient medical wards at a busy, large community hospital. Students will be exposed to a wide range of acute medical issues in patients presenting to the hospital. Course offered all semesters except May and December.

Instructor Consent Required

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8051 - Gastroenterology - Colorado Springs (4-8 Credits)**

Students will work with Gastroenterology clinical faculty seeing patients in the outpatient, inpatient, and endoscopy community settings. Student will be exposed to the full range of adult gastroenterologic disease. The rotation is designed for students to experience the practice and life of a community-based Gastroenterologist. Instructor Consent Required.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8052 - Medical Critical Care - CSB (8 Credits)**

Students will work with a critical care physician and critical care team evaluating critically ill patients in consultation on the hospital wards and providing primary care to the patients in the Intensive Care Units at a large busy community health system.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 8053 - Adult Cardiology - CSB (4-8 Credits)**

This elective provides an opportunity to learn about the history, physical exam, and diagnostic cardiac procedures of adults with heart disease by working directly with attending cardiologists in the outpatient clinic, rounding and performing consults in the hospital, and performing and interpreting cardiac testing.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MEDS 8100 - MEDS Elective Away (4-8 Credits)**

This Medicine elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**MEDS 8600 - Research in Medicine (4-24 Credits)**

2-12 wks. Course provides an opportunity for seniors to participate in research at the clinical or basic science level. The student must consult with Dr. Horwitz or Dr. Aagaard about the varieties of options available. Course is graded on a pass/fail basis only. Restrictions: Not available sections 49-50.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**MEDS 8630 - MEDS Research Away (8-16 Credits)**

This Medicine research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2, 4, 6, or 8 weeks. This course is graded on a pass/fail basis only.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**NEUR 8000 - Advanced Neurology (4-8 Credits)**

This elective offers students further clinical experience with patients who have neurologic disorders. A program is prepared at one of three teaching institutions (University of Colorado Hospital, Denver Veterans Affairs Medical Center, or Denver Health Medical Center) for this rotation. 2 or 4 wks.

Max: 3. Two week rotation allowed only for special circumstances and with course director approval one month prior to beginning of course.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**NEUR 8100 - NEUR Elective Away (4-8 Credits)**

This Neurology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**NEUR 8600 - Research in Neurology (4-24 Credits)**

2-12 wks. For further course information, contact the Chairman, Donald Gilden, M.D., 303-724-4326. Prereq: Offered with Chairman's approval only. The student must receive approval from the Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**NSUR 8014 - Advanced Neurosurgery (4-12 Credits)**

2-6 wks. Max:8. This course can meet Sub-I qualifications. Intensive rotation emphasizing care and management of neurosurgical patients, with close patient responsibility. Weekly conferences and lectures required and students must present a case with topic discussion. Recommended for students with interests in neurosurgery, neurology, emergency medicine and trauma surgery.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**NSUR 8100 - NSUR Elective Away (4-8 Credits)**

This Neurosurgery elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered for 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**NSUR 8600 - Research in Neurosurgery (4-24 Credits)**

2-12 wks. A written evaluation must be sent to Dr. Michael Handler and Lauren Buckles. Prereq: Departmental approval must be obtained and all arrangements made at least one month in advance.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**NSUR 8630 - NSUR Research Away (4-24 Credits)**

This Neurosurgery research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**OBGY 6001 - Career Elective in Obstetrics and Gynecology (1 Credit)**

Students will attend 2-3 OBGYN outpatient clinics held at Denver Health on Thursdays afternoons and one half or full day in the Denver Health Operating Room. 12.5 hours of observation time split between OR, and clinic over a semester. One meeting with the course director to discuss the student interest and experience. Phase I and II students can enroll in course

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**OBGY 8000 - General Obstetrics AI (8 Credits)**

4 weeks. Max:1. This Sub-I course meets the UC SOM requirement for graduation. Offered at DHMC only. Includes experience in outpatient high risk obstetrics, inpatient antepartum, intrapartum, postpartum and family planning. Student works under clinical supervision of residents and attending staff.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**OBGY 8001 - General Gynecology AI (8 Credits)**

4 wks. Max:1. This Sub-I course meets the UC SOM requirement for graduation. Offered at DHMC only. Includes experience in inpatient/outpatient gynecology, family planning, operative gynecology and postoperative care. Student works under supervision of residents and attending staff.

Grading Basis: Medical School



**OBGY 8004 - High Risk Maternal/Fet AI (8 Credits)**

4 wks. Max:1. Intensive exposure to problems of high-risk obstetrics. Student will work under supervision of the Maternal-Fetal Medicine Staff. Student will attend high-risk clinics, have primary responsibility for patient care in antepartum unit under supervision of chief resident.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**OBGY 8005 - Gynecologic Oncology Acting Internship (8-12 Credits)**

4 or 6 wks. Max:1. Student will attend GYN oncology clinics and scrub on all GYN oncology surgery, functioning as acting intern. All pathology will be reviewed with GYN oncologist. Literature review on selected subject required. Clinical research opportunities available.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**OBGY 8009 - GYN Subspecialties (8-12 Credits)**

4 or 6 wks. Max:1. Student attends outpatient gynecologic diagnostic clinics, colposcopy and laser surgery, urogynecology, urodynamics, hysteroscopy, and pelvic pain. Student works under supervision of Gyn staff. Directed study and clinical research. Attendance at colposcopy biopsy review conference, preoperative and Gyn teaching conferences required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**OBGY 8010 - Reproductive/Infertility (4-8 Credits)**

Max:1. Student will attend clinics, scrub on surgical procedures, in vitro fertilization procedures, and embryo transfers. The student will participate in ultrasounds, procedures and clinical consultations. The student will present a brief lecture to the division at the conclusion of the rotation.

Grading Basis: Medical School

**OBGY 8011 - Family Planning (8 Credits)**

4 wks. Max:1. This elective is designed to make the student proficient in providing family planning services: contraception, options counseling and termination procedures. Substantial emphasis will also be placed on participation in ongoing research activities of the division. Prereq: Passing grade in third year Women and Newborns clerkship (IDPT 7030).

Grading Basis: Medical School

**OBGY 8012 - UH Gynecology AI (8 Credits)**

4 wks. Max:1. This course can meet Sub-I qualifications. This course is designed to allow students to become integrally involved with the general gynecology service. Student will partake in all clinical activities of the service, including operative procedures, management of inpatient gynecology conditions, and emergency room consultation. Prereq: Passing grade in third year Women and Newborns Rotation (IDPT 7030).

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**OBGY 8015 - Group Prenatal Care: Pregnancy & Parenting Partners (4 Credits)**

Students will follow a cohort of women through a group prenatal and postpartum care program. Students will work with Certified Nurse Midwives (CNM) and group facilitators to provide prenatal exams and to facilitate educational sessions in an underserved population.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**OBGY 8100 - OBGY Elective Away (4-8 Credits)**

This Obstetrics/Gynecology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**OBGY 8600 - Research in OBGYN (4-24 Credits)**

2-12 wks. Prereq: Departmental approval must be obtained and all arrangements must be made one semester in advance. The student must receive prior approval from the Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**OBGY 8630 - OBGY Research Away (8-16 Credits)**

This Obstetrics/Gynecology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**OPHT 6610 - Biology of the Eye (1 Credit)**

This course introduces contemporary topics in vision science and ophthalmology. It integrates basic science and clinical science of diseases that affect the eye. Available to Phase I-II students.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**OPHT 8000 - Advanced Ophthalmology (4-8 Credits)**

4 wks. Max:1. This elective is designed for senior students seriously considering a career in Ophthalmology. Students rotate at each hospital with in-depth exposure to each subspecialty area. Students are expected to participate with in- and out-patient care, call activities, teaching rounds, and conferences.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**OPHT 8100 - OPHT Elective Away (4-8 Credits)**

This Ophthalmology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks. Departmental approval required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**OPHT 8600 - Research Ophthalmology (4-24 Credits)**

2-12 wks. A final written evaluation must be mailed to Course Director who will assign the final grade. Prereq: Arrangements must be made one month in advance. Departmental approval required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**OPHT 8630 - OPHT Research Away (4-16 Credits)**

This Ophthalmology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**ORTH 5005 - Introduction to Orthopedics (1-2 Credits)**

This course consists of 14 weekly one-hour classroom sessions including interactive lectures covering the orthopedic subspecialties, small group discussion and case presentations. An elective reading list is provided. There are also four one-half day shadowing opportunities in the operating room and clinics. Student evaluation is pass/fail by attendance.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**ORTH 6620 - Intro to Orthopedics (1 Credit)**

The course consists of 10 weekly one-hour classroom sessions, elective reading materials, and four one-half day shadowing opportunities in the operating room and clinics. Student evaluation is pass/fail by attendance.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**ORTH 7005 - Orthopedics (8 Credits)**

Orthopedics offers a four-week experience within orthopedics, radiology, physical medicine and physical therapy. The block provides students with the opportunity to develop diagnostic, physical exam and treatment planning skills as related to MSK conditions. This course also provides operative experience for MSK conditions. MSK symptoms are among the most common reasons for visits to physicians' offices. Annually 15-30% of the population seek care for MSK conditions. The presentation of such ailments can be expected to increase with an aging population. Correspondingly, MSK knowledge and competency are integral for successful practices in internal medicine, family practice, emergency medicine, geriatrics and pediatrics. Proficiency with MSK core competencies will enhance the professional growth of all students regardless of expected specialization. Students can expect to achieve a functional aptitude with the four course objectives outlined in the Course Objectives section.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**ORTH 8000 - Orthopaedic Surgery AI (8-12 Credits)**

4 wks. This course can meet Sub-I qualifications. This course is designed as an elective in Orthopedic Surgery for students desiring residency training in Orthopedics or another surgical specialty. The student will function as a "sub intern" on a resident/faculty team in two hospital settings.

Restrictions: Offered summer and fall semesters.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**ORTH 8001 - Orthopaedic Primary Care (4-8 Credits)**

2-4 wks. Max:4. This course is designed as an elective in musculo-skeletal medicine in route to a career in primary care or other overlapping field. The focus is on outpatient musculoskeletal medicine. Restrictions: Offered spring semester.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**ORTH 8002 - Ortho Advanced Career Elective (8 Credits)**

This advanced career elective is designed to offer extensive orthopedic medical knowledge and clinical experience to students who have completed ORTH 8000 and are seeking additional orthopedic training that would normally be obtained through elective away rotations. Must have completed ORTH 8000 AI.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

Typically Offered: Fall, Summer.

**ORTH 8005 - Sports Medicine (4-8 Credits)**

Max:1. Course provides clinical experience in musculo-skeletal sports medicine. Students will primarily be based in the CU Sports Medicine Clinic. Opportunities include participation in the clinic, operating room and the training room.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**ORTH 8006 - Alpine Orthopedics (8 Credits)**

Orthopedic elective (4 weeks) designed for students on the path to orthopedic surgery residency who are seeking education and experience in a small mountain community. The course will be based out of Crested Butte, CO which has a high volume of sports injuries. Course will also offer exposure to rural orthopedics in Gunnison & Telluride. Prerequisite: Must have completed ORTH 8000 and be applying to orthopedic residency

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**ORTH 8007 - Orthopedic Sub-I Prep (4-8 Credits)**

Introduction to Orthopedic Surgery is designed to prepare fourth year medical students for sub-internship rotations in Orthopedic Surgery. Course includes lectures in anatomy, common injuries, treatment plans, and surgical intervention for eight sub-specialties of Orthopedics including: Trauma, Spine, Hand, Pediatrics, Sports, Adult Recon. Requisite: Students who plan to complete a sub-internship in Orthopedics and who are planning to pursue an orthopedic residency.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**ORTH 8050 - Sports Medicine Colorado Springs (4-8 Credits)**

This elective provides the opportunity to learn about the diagnosis and treatment of common sports injuries and sports-related medical conditions by working with orthopedic surgeons, physical therapists, and athletic trainers in the clinic, hospital, schools, and sports training facilities. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**ORTH 8100 - ORTH Elective Away (8 Credits)**

This Orthopedic elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**ORTH 8600 - Research in Orthopedics (4-8 Credits)**

4-12 wks. Provides an opportunity to participate in research at the clinical or basic science level. The student should contact the Departmental Office 3-4 months in advance to arrange a meeting with a member of the Orthopaedics faculty to define a project. Prereq: Approval from Course Director and Associate Dean for Student Affairs required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**ORTH 8630 - ORTH Research Away (4-16 Credits)**

This Orthopedic research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**OTOL 6660 - Otolaryngology Career Elective (1 Credit)**

The Career Elective in Otolaryngology - Head & Neck Surgery will provide diverse sub-specialty clinical and operative exposure with physician specialists who diagnose and treat disorders of the ears, nose, throat and related structures of the head and neck.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**OTOL 8000 - Advanced Otolaryngology (8-16 Credits)**

4 or 6 wks. Max:3. Recommended for students considering an ENT career. Offers in-depth clinical and operative exposure. Also useful for those seeking primary care to further hone head and neck exam skills and treatment of ENT pathology.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**OTOL 8050 - Otolaryngology (ENT) (4 Credits)**

Patient care in relation to head and neck - ear, nose and throat ailments. Students will experience both outpatient and inpatient interactions. Will see procedures in clinic as well as in the operating room and participate in rounds at the hospital.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**OTOL 8100 - OTOL Elective Away (4-8 Credits)**

This Otolaryngology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**OTOL 8600 - Research Otolaryngology (4-24 Credits)**

4-12 wks. Objectives: 1) work in supervised environment to gain appreciation for research design, criticism and statistical analysis: 2) complete research project with potential to publish in peer-reviewed journal. Prereq: Prior approval from Associate Dean and course director required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**OTOL 8630 - OTOL Research Away (4-16 Credits)**

This Otolaryngology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**PATH 7005 - Pathology Selective for Third-Year Medical Students (8 Credits)**

Student rotates through Anatomic Pathology (AP) and Clinical Pathology (CP) services (surgical, cytology, autopsy, pediatric, transfusion medicine and hematopathology). Subspecialty rotations can be arranged in AP (GYN, GU, GI, pulmonary, molecular, hematopathology, neuropathology) or Clinical Pathology (CP) (clinical chemistry, microbiology, coagulation) per student's interest.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PATH 8000 - Pathology for Non-Pathologists (4-8 Credits)**

2-4 weeks. Max:2. The Department assigns hospital by interests of the student. Anatomic pathology includes autopsy, surgical pathology, hematopathology and cytology. Clinical pathology includes clinical chemistry, microbiology, coagulation/blood banking and molecular diagnosis. Intended for those interested in clinical medicine, especially a pathology career.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PATH 8050 - Pathology - Colorado Springs (4-8 Credits)**

Students will work with Pathology faculty and residents in the long-standing Penrose-St Francis Pathology Residency Program in Colorado Springs. Students will engage in experiential learning in laboratory medicine, anatomic pathology, and participate in didactics. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PATH 8100 - PATH Elective Away (8 Credits)**

This Pathology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PATH 8600 - Research in Pathology (4-24 Credits)**

2-12 wks. Prereq: Department approval must be obtained and all arrangements made at least one month in advance. The student must also receive approval from the Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**PATH 8630 - PATH Research Away (4-16 Credits)**

This Pathology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**PATH 8990 - Doctoral (1-10 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

**PEDS 5005 - Exploring Epigenetics: Understanding Genes by Early Environmental Interactions (1-2 Credits)**

Exploring Epigenetics is a course aimed at educating the students on the factors that impact gene expression without a change to DNA sequence.

There will be a few didactic sessions exploring basic epigenetic principles, model and mechanisms for research applications, and finally applications of epigenetics to pathology including neurodevelopmental disorders and impact of adverse exposures such as childhood trauma. Students will also rotate through clinical and laboratory experiences including the childhood trauma clinic (The Kempe Center for the Prevention and Treatment of Child Abuse and Neglect), genetics and oncology, and labs investigating epigenetic mechanisms. The students will be asked to produce three one paragraph reflection pieces throughout their course and lead a journal club on an article that pertains to course content.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**PEDS 6622 - Diabetes Mellitus (3 Credits)**

Max: 3. The student will spend 1 week at diabetes camp. One will learn about diabetes as well as children. Before and after camp, time will be spent at the Barbara Davis Center clinic. Clinical research projects can be developed if interested.

Grading Basis: Medical School

Typically Offered: Summer.

**PEDS 6623 - Warren Village Clinic (1 Credit)**

Offered summer, fall, spring semesters. Max:20/Min:8. An opportunity for Phase I and II students to participate in a pediatric clinic. Students will provide well-care and minor acute illness care for children. Students are required to attend an orientation and three to four Wednesday evening clinics.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8000 - Pediatric AI (8 Credits)**

4 wks. Max:3. This course can meet Sub-I qualifications. Designed for those students who are interested in further training in pediatrics. Students will be integrated as a functional member of a pediatric ward team. Restrictions: A 2-month advance notice is required to drop this course.

Grading Basis: Medical School

**PEDS 8004 - Pediatric Cardiology (8 Credits)**

4 wks. Max:1. Evaluation of children with heart disease by history, physical examination, electrocardiography, roentgenography, echocardiography, and cardiac catheterization will be stressed. The student will make rounds with the cardiology team, see consults, attend outpatient clinics, and participate in cardiac catheterizations and conferences.

Grading Basis: Medical School

**PEDS 8005 - Allergy and Immunology CHCO (4-8 Credits)**

The student will work alongside allergy and immunology providers and share in the care of patients from clinic, as well as inpatient consults.

Opportunities will be provided to observe skin testing, food/drug challenges, immuno-therapy, and pulmonary function testing. Offer 2, 4 wk

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Spring, Summer.

**PEDS 8006 - National Jewish Immunology and Allergy (4-24 Credits)**

Max: 2. The student is assigned to a pediatric allergy attending; share in the care of NJC outpatients, attend lectures, rounds, and conferences. Patient responsibility delegated by attending and commensurate with the student's interest/ability. Opportunities provided to observe laboratory procedures in immunology/pulmonary physiology laboratories. Weeks offered 2, 4, 8, 12.

Grading Basis: Medical School



**PEDS 8007 - Child Abuse and Neglect (4-8 Credits)**

2 wks. Max:1. Held at TCH and Kempe Center. Basic principles of Child Abuse and Neglect; participate in team evaluation of outpatient and inpatient child abuse cases, and attend court with team members. Primarily observational and includes independent study. One case write-up required.

Restrictions: Not available sections 21-24.

Grading Basis: Medical School

**PEDS 8008 - Birth Defects/ Genetics (8-24 Credits)**

4,6,8,or 12 wks. Max:1. Rotation includes experience in the General Genetics, Inherited Metabolic Diseases, Muscle, Neurocutaneous and outreach clinics. Students will participate in diagnosis, pedigree assessment and management. Students will participate in consultations with faculty, attend conferences, visit laboratories; an oral presentation is required.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**PEDS 8009 - Peds Infectious Disease (8 Credits)**

4 wks. Max:1. This course provides experience in the pathophysiology, diagnosis, and therapy of childhood infections. Students evaluate in-patients and present cases at daily teaching rounds. Experience in the diagnostic Microbiology laboratory is provided. There is a weekly HIV/infectious disease clinic.

Grading Basis: Medical School

**PEDS 8010 - EPAC Individualized Elective (4-24 Credits)**

This course allows students in the Education in Pediatrics Across the Continuum (EPAC) to develop an individualized learning experience. This may include rotations in areas that do not have an existing course or a combination of experiences across courses.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**PEDS 8011 - Pediatric Pulmonary (8 Credits)**

Max:1. Basic background knowledge in pediatric pulmonary physiology and disease will be provided. The student will attend rounds, clinics and weekly conferences and participate in hospital consultations. Students will be expected to present a seminar/case discussion on a pediatric pulmonary topic.

Weeks offered 4

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**PEDS 8012 - Pediatric Neurology (8-24 Credits)**

4,6, or 12 wks. Max:1. Child Neurology provides students with the opportunity to gain experience evaluating children with a wide variety of neurological problems. Students will round on hospital and clinic patients, complete assigned readings and attend Neurology grand rounds.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**PEDS 8013 - Pediatric Endocrinology (8 Credits)**

Max:1. A large variety of patients with abnormalities of growth and pubertal development, thyroid disorders, and diabetes mellitus are reviewed and treated each week. Seminars on selected topics are scheduled three times per week. Weeks offered 4.

Grading Basis: Medical School

**PEDS 8015 - Pediatric Neonatology AI (8 Credits)**

4 wks. Max:3. This course can meet Sub-I qualifications. Student assigned to UCH, DHMC, or TCH and will participate actively in the care of critically-ill infants including work rounds, attending rounds, conferences and night call. Experience will be gained in procedures and ventilator management.

Grading Basis: Medical School

**PEDS 8018 - General Academic Peds (4-8 Credits)**

Max:1. This course offers exciting experience in ambulatorypediatrics at The Children's Hospital. There are 9 educational conferences per week. No night call. offer 2 wks

Grading Basis: Medical School

**PEDS 8020 - Adolescent Medicine (8 Credits)**

4 wks. Max:1. Provides basic knowledge and clinical skills in diagnosis and management of medical problems during adolescence. Including development of skills in interviewing and counseling adolescents in various health care settings. Students will prepare and present a seminar/case discussion on this topic.

Grading Basis: Medical School

**PEDS 8021 - Pediatric Disability Medicine (8 Credits)**

Pediatric Disability Medicine is a four-week course designed to give students exposure to important concepts of disability, issues affecting children with disabilities and their families, multidisciplinary clinical care of this population and an introduction to transition to adulthood.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PEDS 8022 - Peds Gastroenterology (8 Credits)**

Max:1. Clinical rotation on pediatric gastroenterology inpatient and outpatient services and procedure unit and scheduled conferences. This rotation is designed for students with a specific interest in pediatrics and/or gastroenterology.

Grading Basis: Medical School

**PEDS 8023 - Healthy Beginnings Clinic: 4th Year Manager (4 Credits)**

Fourth year course for students who are already members of the Warren Village Healthy Beginnings Clinic Steering Committee. Students will continue to attend meetings and manage clinic. They are also expected to lead teaching and clinical development of students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**PEDS 8024 - Child Development/Behavior (4-8 Credits)**

2 or 4 wks. Max:1. Medical students will participate in the medical assessment and treatment of children with developmental and behavioral problems. They will attend lectures, participate in the seminars, and observe multidisciplinary assessments of children with developmental disorders.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**PEDS 8025 - Peds Emergency Medicine (4-8 Credits)**

Max:1. Students gain experience in assessment/management of common conditions in a pediatric emergency department including minor emergencies, acutely ill children, and traumatic diagnoses. Procedural experience at student's level, and at attending's discretion, will also be gained.

Grading Basis: Medical School

**PEDS 8026 - Pediatric Nephrology (4-8 Credits)**

4 wks. Max:1. Students will actively participate in the care and evaluation of patients under the direction of the attending and participating resident. Common problems such as hematuria, proteinuria, electrolyte disturbances, chronic renal insufficiency, hypertension, hemodialysis, peritoneal dialysis, and renal transplantation are addressed.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8027 - Pediatric ICU AI (8 Credits)**

4 wks. Max:1. This course can meet Sub-I qualifications. The sub-intern is responsible for evaluation and continuing care of patients under the supervision of a Fellow and Attending. The student will learn basic pathophysiology of critical illness and enhance skills in reporting and interpreting clinical data, and patient management. Prereq: IDPT 7020 Infant/Adolescent Care.

Grading Basis: Medical School

**PEDS 8029 - Breastfeeding Management (4 Credits)**

2 wks. Max:2. An introduction to breastfeeding as a medical topic, with precepting by lactation specialists at clinical sites and self-directed learning through complementary activities. Assessment and management of mother/infant breastfeeding dyad is emphasized. Contact Dr. Bunik two weeks before start or Laura.Primak@uchsc.edu.

Grading Basis: Medical School

**PEDS 8030 - Vaccination in Pediatrics (4-8 Credits)**

4 wks. Max:2. Students develop extensive knowledge in ambulatory general pediatrics with an emphasis on vaccine preventable diseases. Experiences include didactics on vaccination, vaccine screening, advocacy, and report writing. Exposure to laboratory vaccine research supported but requires availability. Prereq: MS III Pediatric Rotation.

Grading Basis: Medical School

**PEDS 8031 - Pediatric Hematology/Oncology (8 Credits)**

Students will participate in the clinical activities of the Pediatric Hematology-Oncology Service, both inpatient and outpatient. They will be involved in patient care, perform procedures including lumbar punctures and bone marrow aspirated/biopsies, and attend relevant conferences. Prereq: Successful completion of all third year clerkships. No restrictions at this time. Course will also be offered to externs.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PEDS 8050 - Pediatric Gastroenterology Colorado Springs (8 Credits)**

Students will see patients in the pediatric GI inpatient and outpatient setting. Students will be exposed to common GI procedures. The rotation is designed for students with specific interest in pediatrics and gastroenterology. Instructor consent required.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PEDS 8051 - Pediatric Cardiology CSB (4-8 Credits)**

This elective provides an opportunity to become acquainted with the special diagnostic and therapeutic problems of the infant and child with heart disease. Diagnosis by history, physical exam, electrocardiography (fetal and pediatric) chest x-ray, etc. will be emphasized. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PEDS 8052 - Pediatric Hematology Oncology – Colorado Springs (4-8 Credits)**

Students will see patients in the pediatric neurology inpatient and the outpatient setting. Students will be exposed to common neurology procedures. The rotation is designed for students with specific interest in pediatrics and neurology. Pre-requisite: Successful completion of all third year clerkships

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8053 - Pediatric Neurology – Colorado Springs (4-8 Credits)**

Students will see patients in the pediatric neurology inpatient and the outpatient setting. Students will be exposed to common neurology procedures. The rotation is designed for students with specific interest in pediatrics and neurology. Pre-requisite: Successful completion of all third year clerkships

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8054 - Pediatric ENT– Colorado Springs (4-8 Credits)**

Students will see patients in the pediatric ENT inpatient and the outpatient setting. Students will be exposed to common ENT procedures. The rotation is designed for students with specific interest in pediatrics and otolaryngology. Pre-Requisite: Successful completion of all third year clerkships

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8100 - PEDS Elective Away (4-8 Credits)**

This Pediatric elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8600 - Research in Pediatrics (4-24 Credits)**

2-12 wks. Prereq: Student must receive departmental approval one semester in advance of rotation. Approval from the Associate Dean for Student Affairs required. Restrictions: Sections 49-50 not available.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 32.

**PEDS 8630 - PEDS Research Away (4-16 Credits)**

This Pediatric research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**PHMD 8000 - Physical Med & Rehab (4-8 Credits)**

Max:4. This elective provides experience in the diagnosis and treatment of patients with pathology of the neurologic and musculoskeletal systems. 4 different locations (VA, Denver Health, University Hospital, The Children's Hospital) allow treatment of a variety of conditions related to rehabilitation.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PHMD 8100 - PHMD Elective Away (4-8 Credits)**

This Physical Medicine and Rehabilitation elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Prereq: 800

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PHMD 8600 - Research Physical Med (4-24 Credits)**

2-12 wks. Written evaluation must be sent by individual instructor, with course director responsible for final grade. Prereq: PHMD 8000. Obtain departmental approval and all arrangements made at least one month in advance and prior approval from Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**PRMD 6642 - Legislative Health Care Policy (2 Credits)**

Grading Basis: Letter Grade

**PRMD 8003 - Specialty Preventive Med (8 Credits)**

4 wks. Max:4. Designed for students interested in exploring the field of preventive medicine. Tailored educational experiences in the Denver area in a variety of settings. Speak with course director to design this elective. Prereq: Course director approval required to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

**PRMD 8006 - Dir Study Ethics/Humanities (4-24 Credits)**

2-12 wks. Selected students may participate in directed scholarly work in Bioethics and Medical Humanities with specific faculty members.

Opportunities such as directed literature reviews, clinical research projects, curriculum development projects, and other scholarly activities are available. Prereq: Course director approval required to add course.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**PRMD 8100 - PRMD Elective Away (8 Credits)**

This Preventive Medicine elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PRMD 8600 - Research Preventive Med (4-24 Credits)**

2, 4, 8 or 12 wks. Designed for students interested in preventive medicine research. Tailored research experiences in the Denver area can be established in a variety of settings. Speak with the course director to design this elective. Prereq: Course Director and Associate Dean for Student Affairs approval required to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**PRMD 8630 - PRMD Research Away (4-16 Credits)**

This Preventive Medicine elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PRMD 9000 - Intercampus Spec Topics (1-10 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

**PSYM 6620 - Psychiatric Aspects of Great Literature (2 Credits)**

Min:4 Max:15. Writers, the first thinkers to understand the "wholeman," took into account his unconscious. We'll illustrate this as reflected in normal development and personality formation, symbolization, fantasy and psychopathology using the characters and texts from Great Literature. Tuesday evenings.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**PSYM 6626 - Intro to Emergency Psch (1 Credit)**

Min:4 Max:20. Students will learn basics of emergency evaluation with particular focus on suicide, homicide, child abuse, spouse abuse, and incest. Students will see emergency psychiatric consultations with residents, staff or faculty.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**PSYM 6632 - Denver CARES Elective (1 Credit)**

Min:6 Max:20: In this course students will gain confidence in performing basic H&P skills while interacting with acutely ill patients in a detox facility. Requirements include volunteering a minimum of two shifts, as well as attending the orientation and debriefing sessions.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**PSYM 6633 - SUD in Medical Practice (1 Credit)**

Fall and Spring. Students will learn basic identification, assessment and treatment of substance abuse disorders through clinical experience, reading, and seminars. Will evaluate patients in 2 afternoon clinics (adolescent and adult treatment program) and 2 seminars. Core reading will supplement clinical experience.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**PSYM 8000 - Advanced Inpatient Psychiatry (8-12 Credits)**

Students take responsibility as primary provider for seriously ill patients, work closely with treatment team directed by an attending psychiatrist. Students assume responsibilities for care of patients that interns typically assume: performing H&Ps, writing orders, giving "bad news" when appropriate.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**PSYM 8001 - Primary Care Substance Problem (4-8 Credits)**

2-4 wks. Max:2. In treatment programs, experts' tutorials, and readings, students learn approaches to 6 common primary care substance problems, such as addiction in pain disorders, pregnancy, smoking with tobacco-induced illness, and substance involved adolescents. Students write a paper on the 6 clinical problems. Prereq: Course Director approval required to add course.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**PSYM 8003 - Elective in Psychiatry (4-8 Credits)**

Students in conjunction with the office of psychiatry medical student education, choose to work with patients on an inpatient psychiatry ward, outpatient clinic or other psychiatric units as a member of a treatment team.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PSYM 8004 - Advanced Child and Adolescent Inpatient Psychiatry (8-12 Credits)**

4 or 6 wks. This Sub-I course DOES NOT meet the UC SOM requirement for graduation. Evaluate and manage adolescents with psychiatric disorders. Students will be members of multidisciplinary team learning about psychopathology, psychopharmacology, psychotherapy, family therapy and other treatment modalities. Students will learn about systems of care. Restrictions: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8006 - Clinical PSYM Consultation/Liaison (8-12 Credits)**

Consultation-Liaison Psychiatry a unique discipline within the field of psychiatry which combines knowledge of medical illnesses, psychotherapy and psychopharmacology with an ability to forge liaisons within the medical community. Evaluate and help manage patients with psychiatric disorders within medical settings. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8007 - Clinical PSYM Emergency Services (8-12 Credits)**

Learn elements of crisis intervention, and to make psychiatric diagnoses and evaluate lethality. Students will evaluate and help treat a broad range of psychiatric difficulties, and encounter the psychiatric and psychosocial problems they will see in their practices. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8008 - Forensic and Correctional Psych (8 Credits)**

Introduction to the interface of criminal law and psychiatry. Students will be involved in the evaluation of people entering pleas of incompetency to stand trial and not guilty by reason of insanity as well as the treatment and restoration process. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8009 - Clinical PSYM Addiction (8-12 Credits)**

Learn the essentials of identification, assessment, and treatment of patients with substance use disorders. Emphasis on screening and brief intervention techniques. Learn principles of detoxification for alcohol, opioids, and cocaine; interpretation of drug testing results; proper prescribing practices. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8010 - Clinical PSYM Eating Disorders (8-12 Credits)**

Evaluate and manage patients with eating disorders under the direction of fellows and attendings. Student will gain specific knowledge of classification, epidemiology, etiology, physiology, and treatment of eating disorders. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.



**PSYM 8015 - Perinatal and Infant Mental Health (8 Credits)**

Students will learn about maternal mental health during pregnancy and the first year postpartum, and gain understanding of infant mental health and the mother-baby relationship. Students will work in the following settings: outpatient mom-baby group therapy, psychiatric outpatient clinic, NICU, integrated mental health in OB/GYN and Young Mother's Clinic (pediatric primary care).

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8100 - PSYM Elective Away (4-8 Credits)**

This Psychiatry elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PSYM 8600 - Research in Psychiatry (4-24 Credits)**

2-12 wks. Research electives in various areas of Psychiatry. Contact Randy Ross, MD or Sharon Hunter, PhD for menu of research options. Prereq: The student must receive prior approval from the Associate Dean for Student Affairs and the course director to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**RADI 5005 - Clinical Ultrasound (1-2 Credits)**

Ultrasound is being used by clinicians in many different settings for many different applications. This elective will introduce students to many of the primary applications for clinician-performed ultrasound. All of the meetings times will be devoted to hands-on ultrasound scanning. The scanning sessions will be in a small group setting with no more than six students per ultrasound machine. Students will be provided with pre-scanning session didactic materials to review.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**RADI 7001 - Pediatric Radiology Selective - Children's Hospital (8 Credits)**

Students will gain an understanding of the basics of pediatric imaging and correlation with anatomy and pathology. Students will learn the indication for and basic approach to interpretation of all imaging modalities including: x-ray, ultrasound, fluoroscopy, CT, MRI, nuclear medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8000 - Diagnostic Radiology (8 Credits)**

An introduction to the interpretation of images and the role of diagnostic imaging in patient care. Clinical observation, lectures, and independent study at UH/AOP. Only 2 days of absence permitted for any reason. Restrictions: Course not available sections 29 & 33. 4 wks. Max:4.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**RADI 8001 - Radiology for Non-Radiologists (4 Credits)**

Two-week course providing specialty focused radiology education, designed to help students be prepared for both internship year and their future career. Students will spend time with specific sub-specialty trained radiologists, based on interest, while reviewing foundational radiology course work.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**RADI 8002 - Nuclear Medicine (4-8 Credits)**

Max:2. Nuclear Medicine encompasses the various uses of radioactive compounds in medical diagnosis and therapy. Students participate in the supervision and interpretation of nuclear medicine procedures under the guidance of the staff/residents at the AOP. Students will attend daily conferences.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**RADI 8003 - Pediatric Radiology (4-8 Credits)**

Students will gain an understanding of the basics of pediatric imaging and correlation with anatomy and pathology. Students will learn basic approach to performance and interpretation of all imaging modalities including: x-ray, ultrasound, fluoroscopy, CT, MRI, nuclear medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8007 - Interventional Radiology (4-8 Credits)**

2-4 wks. Max: 3. Interventional Radiology is the treatment of disease conditions using minimally invasive means. These procedures are performed with X-rays, US, and CT guidance. The student will round with the team, participate in procedures, and attend daily conferences. Standard student evaluation used.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**RADI 8008 - Virtual Interventional Radiology (4 Credits)**

Virtual introduction to Interventional Radiology, the field of diagnosis and treatment of disease conditions using minimally invasive image (fluoroscopy, US, CT) guided procedures.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8050 - Interventional Radiology - CSB (4 Credits)**

Patient care in relation to interventional radiology-inpatient setting. Procedures may include intravascular emergencies, lines, PEG tube - CT guided procedures; ultrasound guided procedures; drain placements and observing radiology readings. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8100 - RADI Elective Away (4-8 Credits)**

This Radiology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. For rotation approval, students must first provide name, address, and phone number of preceptor to the course director. Students maintain sole responsibility for obtaining written evaluation. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**RADI 8600 - Research in Radiology (4-24 Credits)**

Student must submit a research project description and the name of their preceptor to the course director prior to the start of the elective. Student is responsible for obtaining written evaluation 2 week rotation not Honors eligible.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**RADI 8630 - RADI Research Away (4-24 Credits)**

This Radiology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 8 or 12 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**RAON 8005 - Radiation Oncology (8 Credits)**

4 wks. Max: 2. The student will learn the basic tools and techniques of radiation oncology, evaluate patients before and after treatment, learn specialized exam techniques, participate in consultations and multi-modality cancer treatment planning. Students will attend and participate in multidisciplinary tumor conferences.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**RAON 8100 - RAON Elective Away (8 Credits)**

This Radiation Oncology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks. Prereq: RAON 8005. Departmental approval must be obtained one month in advance.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**RAON 8600 - Research RAD Oncology (8 Credits)**

4 wks. This elective is designed to acquaint the student with current research developments, knowledge and techniques in radiation oncology. Prereq: RAON 8005. Departmental and Associate Dean of Student Affairs approval must be obtained and all arrangements made one semester in advance.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**RAON 8630 - RAON Research Away (8-12 Credits)**

This Radiation Oncology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 or 6 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**SURG 5005 - Introduction to Surgery (1-2 Credits)**

Intro to general surgery & a variety of surgical specialties with an emphasis on foundational skills & knowledge development.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**SURG 5006 - Introduction to Surgery - Fort Collins Branch Campus (1-2 Credits)**

Introduction to general surgery and a variety of surgical specialties with an emphasis on foundational skills and knowledge development. Weekly lectures given by Department of Surgery faculty from Poudre Valley Hospital and Medical Center of the Rockies in specialties such as ENT surgery, trauma surgery, surgical oncology, plastic and reconstructive surgery, urology, and orthopedics. An additional skills session will be provided to introduce students to surgical instrumentation and basic surgical skills.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**SURG 5094 - Department of Surgery Summer Research Program (2-12 Credits)**

Department of Surgery Mentored Summer Research Program. You will be paired with a faculty mentor for a specific scholarly research project, guided through the completion of the project, and culminate in a research symposium.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**SURG 6660 - Career Elective in UROL (1 Credit)**

Students will attend 2-3 urology outpatient clinics held at the UCH on Wed and Fri afternoons and one half or full day in the UCH OR (Mon, Tues or Thurs). 12.5 hours of observation split between OR and clinic.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**SURG 8000 - Gen Surg Univ AI (8-24 Credits)**

4-12 wks. Max:4. This course can meet Sub-I qualifications. Students perform intern responsibilities on General Surgical Service at University of Colorado Hospital. Students alternate night call, write orders on assigned patients and participate in preoperative, operative and postoperative care of inpatients.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**SURG 8001 - Gen Surg DHMC AI (8-12 Credits)**

4 or 6 wks. Max:3. This course can meet Sub-I qualifications. Join an Acute Care Surgery Team at a Level 1 Trauma Center. Course emphasizes pre-operative evaluation, operating room decisions and postoperative care outside the ICU. Student will attend clinics, rounds, conferences and surgical procedures.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**SURG 8002 - Gen Surg St Joseph's AI (8 Credits)**

Held at Exempla St. Joseph Hospital with emergency & elective surgery. Emphasize pre- and postoperative care. Graduated operating room experience and exposure to skills lab. Active participation in surgery clinic. Housestaff team assignments with assigned faculty mentors. Active daily conferences, including Grand Rounds and M&M.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**SURG 8008 - Advanced Cardiothoracic Surg (8 Credits)**

4 wks. Max:2. This course can meet Sub-I qualifications. Adult cardiac and general thoracic surgery and critical care monitoring on the Cardiothoracic Service at UH and Denver VAMC. Students will participate in preoperative, operative and postoperative care.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**SURG 8010 - Burn Critical Care/Surg (8-12 Credits)**

4 or 6 wks. Max:1. This course can meet Sub-I qualifications. Acting sun-intern on Burn Service, working with Burn and related Surgical Critical Care cases. A high level of patient care responsibility, including bedside procedures, burn care and line charges. Work with attending faculty, and gain a multidisciplinary approach to burns.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**SURG 8011 - Hand Surgery (8 Credits)**

Max:1. The students will participate in all aspects of the hand service including the emergency room, outpatient clinics, inpatient/outpatient operative and non-operative treatment. Emphasis is on acute hand and upper extremity diseases, trauma, their treatment and rehabilitation.

Grading Basis: Medical School

**SURG 8012 - Advanced Urology (8-16 Credits)**

4 wks. Max:4. This course can meet Sub-I qualifications. All students are required to rotate at hospitals, participate and perform physical exams, follow-up, clinic and surgeries. All Urology Conferences are mandatory. The Chief Resident, under supervision of the Attending, guides educational experiences.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

**SURG 8015 - Pediatric Surgery (4-12 Credits)**

2,4, or 6 wks. Max:1. Student will assume major clinical responsibility for pediatric surgical patients, will work with housestaff, share patient care and work-ups, act as liaison to families, attend operations and teaching conferences, and actively participate in the surgical management of infants and children.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**SURG 8019 - Plastic Surgery (8 Credits)**

Max:1. Students learn basic principles of wound healing, care, and management; management and reconstruction of maxillofacial trauma; head and neck cancer; congenital anomalies; tissue transplantation; cosmetic surgery; and plastic/reconstructive management of post-burn and post-surgical patients. Prereq: IDPT 7050.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**SURG 8021 - Surgical Critical Care AI (8-12 Credits)**

4 wks. Max:2. Assigned to surgical ICU, work with critical care residents, fellow and staff. Students gain experience in resuscitation, hemodynamic monitoring, mechanical ventilation, nutritional support, bedside ultrasound and all aspects in care of critically ill surgical patients.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**SURG 8022 - Visiting Virtual Urology Rotation (4 Credits)**

Virtual introduction to Urology, the field of diseases of the male and female urinary tract and the male reproductive system.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**SURG 8030 - Transplant Surgery (8 Credits)**

2-4 wks. Max:3. Medical student will round with transplant team, which includes: Surgeons, Nephrologists, and Hepatologists. They will be exposed to all aspects of transplant care including preoperative work up, donor surgery, transplant surgery, post-operative care.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**SURG 8050 - Trauma Surgery - CSB (4-8 Credits)**

Patient care in emergency surgery/acute care surgery and trauma. Student will participate with inpatient, outpatient and clinic patients. Student will see pre-op, post-op, and emergency patients. Only open June and July. Enrollment limit June and July: 3. Enrollment limit if offered August-May: 1.

Grading Basis: Medical School

**SURG 8051 - Plastic Surgery - CSB (4 Credits)**

Patient care in both emergency, plastic surgery such as acute major lacerations, cartilage repair, bone repair of face, skin grafting, flap repairs with soft tissue loss. Patient care in elective plastic surgery including all cosmetic surgery. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**SURG 8052 - Surgical Critical Care - CSB (4-12 Credits)**

The surgical care clerkship involves the student in the management of medical technology and coordination with a multidisciplinary staff in evidence-based, goal-oriented, humanistic treatment of critical illness. Instructor consent required.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**SURG 8100 - Surg Elective Away (4-8 Credits)**

This Surgery elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**SURG 8600 - Research in Surgery (4-24 Credits)**

2-12 wks. Contact department for further course information. Prereq: The student must receive prior approval from the Associate Dean for Student Affairs and course director to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**SURG 8630 - SURG Research Away (4-24 Credits)**

This Surgery research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 8 or 12 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

## Office of Research Education

### Overview

The Office of Research Education (ORE) is the home of 1 umbrella-admitting program:

- Biomedical Sciences (p. 311)

and 12 PhD-granting programs:

- Cancer Biology (p. 312)
- Cell Biology, Stem Cells & Developmental Biology (p. 315)
- Computational Bioscience (p. 318)
- Human Medical Genetics & Genomics (p. 320)
- Immunology (p. 323)
- Integrated Physiology (p. 326)
- Microbiology (p. 338)
- Molecular Biology (p. 341)
- Neuroscience (p. 343)
- Pharmacology (p. 346)
- Rehabilitation Sciences (p. 348)
- Structural Biology & Biochemistry (p. 351)

ORE aligns within the School of Medicine and collaborates with the MD and the dual degree MD/PhD Program (p. 328).

Students in the Biomedical PhD programs receive the education and support to conduct innovative biomedical research. The PhD programs provide training in a wide variety of essential skills, including oral and written communication, leadership, and personal and professional integrity. The diverse, inclusive, and safe environment, fostered by the School of Medicine and Anschutz Medical Campus, supports the holistic training provided by our programs that prepares one for a wide range of career opportunities.

- Biomedical Sciences (p. 311)
- Cancer Biology (PhD) (p. 312)
- Cell Biology, Stem Cells & Development (PhD) (p. 315)
- Computational Bioscience (PhD) (p. 318)
- Human Medical Genetics & Genomics (PhD) (p. 320)
- Immunology (PhD) (p. 323)
- Integrated Physiology (PhD) (p. 326)
- Medical Scientist Training Program (MD/PhD) (p. 328)
- Microbiology (PhD) (p. 338)
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## Mission Statement

The 13 Biomedical PhD programs of The Office of Research Education in the School of Medicine collaborates to achieve a tripartite mission:

- To train excellent and diverse PhD graduate students in the critical thinking, research design and methods required for impactful biomedical research.
- To provide an intellectual center that enriches and furthers the curiosity that draws students and faculty to scientific research, innovation, education and communication.
- To foster strong scientific interactions between the basic science and clinical/translation research communities on our campus and across the nation to advance fundamental discoveries and improve health.

## Contact Us

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## Biomedical Sciences

### Overview

BSP is the premier umbrella admissions program for the AMC campus. Because the program is interdisciplinary, BSP students have the flexibility to choose one of 11 courses of study. We have over 200 training faculty representing all the basic and clinical departments on campus.

## Admissions Requirements

To apply for admission applicants must submit the following:

- **Transcripts** | Transcripts from every institution you (the applicant) attended are required with your application. This includes transcripts from institutions regardless if a degree was earned (i.e. community colleges, transfers, etc.). For admissions review, a photocopy of an official transcript with the seal from the institution is sufficient. However, for enrollment, the graduate school requires an official copy sent from the institution directly. You can upload your unofficial photocopy to the application and you can have an official copy sent according to the following instructions:

E-transcripts can be sent to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)



OR

Mail Official transcript(s) to:

Graduate Admissions  
University of Colorado Denver  
Campus Box 163  
PO Box 173364  
Denver, CO 80217

- **Letters of Recommendation** | Three (3) letters of recommendation are required as part of the application. By indicating your three (3) references on your application, they will be notified via email\* to submit their letter of recommendation for you online. The Admission Committee assigns considerable weight to these letters in assessing a student’s qualifications and probable success as a scientist. It is advantageous to have letters submitted by faculty who are well acquainted with the applicant’s academic performance, research experience, and achievement potential.

BSP accepts a limited number of students each year and there are very few fellowships available for international students. We advise international students to consider applying through individual programs on our campus. Since tuition and fees are paid for and a stipend is received for all students, a financial affidavit showing adequate funds to live and study in the United States is not required during the application process.

Students whose native language is not English or who have completed their studies at an institution where English was not the language of instruction, must demonstrate English language proficiency by submitting scores of the Test Of English as a Foreign Language (TOEFL) or its equivalent (IELTS).

Degree Requirements

Course	Title	Hours
Year 1		
Fall		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science	1-6
BMSC 7810	Core Topics in Biomedical Science	1-6
BMSC 7650	Research in Biomedical Sciences Section 001	1-3
BMSC 7650	Research in Biomedical Sciences Section 002	1-3
Hours		10-24
Spring		
Complete 2 Elective Courses (selected by student)		
BMSC 7650	Research in Biomedical Sciences Section 0V3	1-3
Hours		1-3
Total Hours		11-27

Learning Objectives

The BSP trains graduate students to become proficient and successful investigators who are able to:

- Demonstrate a basic knowledge of central concepts in the biomedical sciences.
- Understand the basic principles underlying numerous different disciplines within the biomedical sciences
- Read and critically evaluate the scientific literature.

- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

Courses

BMSC 7650 - Research in Biomedical Sciences (1-3 Credits)  
Research rotation for students in the biomedical sciences in PhD program. Prereq: Consent of Instructor. Previously offered as IDPT 7650  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 20.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)  
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

Policies

Please refer to the Graduate School Policies page (p. 166).

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Cancer Biology (PhD)  
Overview

The Cancer Biology Training Program at the University of Colorado Denver | Anschutz Medical Campus is an interdepartmental program leading to the PhD in Cancer Biology. The Cancer Biology Program combines training in the basic biomedical sciences with opportunities to apply clinical and translational research to studies on human cancer.

Our highly accomplished training faculty includes over 50 basic and clinical scientists from 13 departments and divisions. Our curriculum is rigorous, yet flexible, and provides opportunities for advanced study

in cellular and molecular oncology, as well as the translational medical sciences. Our research community includes a NIH/NCI designated Comprehensive Cancer Center, which brings together scientists with diverse research approaches to focus on the problem of cancer. The training program in cancer biology is supported by a NIH/NCI T32 training grant that provides funding for pre and post-doctoral trainees.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application.
- A \$50.00 domestic and \$75.00 international non-refundable application fee [credit card (on-line only), check, or money order]. No application will be processed unless this fee is paid.
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come from the issuing institution directly to the University of Colorado Denver Graduate Admissions.
  - Electronic Transcripts should be sent to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)
  - If sending a physical transcript, please mail to:
 

Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364
- Three (3) letters of recommendation.
  - The most informative letters will come from Professors who have mentored you in your research experiences. Professors who have taught science classes you have been enrolled in, or whom you have worked with in an advisory capacity, are also good choices. We do not recommend that you ask postdocs, technicians or fellow students for letters. Likewise, members of the community are generally not good choices, as typically their understanding of biomedical PhD training, and hence their ability to evaluate your potential, is limited.

International students must meet ALL of the requirements above and those required by International Admissions.

## Degree Requirements

A minimum of 3 elective credits are required (as specified in the CANB handbook) in addition to the specified courses below.

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science (Student may select)	1-6
BMSC 7810	Core Topics in Biomedical Science (Cancer Biology)	1-6
PHCL 7605	Responsible Conduct of Research	1
CANB 7650	Research in Cancer Biology	1-10
CANB 7660	Advanced Topics: CANB	1

CANB 7613	Research Seminars and Journal Club	1
<b>Hours</b>		<b>12-31</b>
<b>Spring</b>		
CANB 7600	Molecular Mechanisms of Cancer	4
CANB 7610 or CANB 7602	Pathobiology of Cancer Mini-Course or Special Topics in Cancer Biology	1
CANB 7690	Grant Writing in Cancer Biology	1
CANB 7650	Research in Cancer Biology	1-10
<b>Hours</b>		<b>7-16</b>
<b>Summer</b>		
CANB 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>20-57</b>

### Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
BIOS 6606	Statistics for the Basic Sciences	3
CANB 7650	Research in Cancer Biology <sup>OV3</sup>	1-10
CANB 7613	Research Seminars and Journal Club	1
Electives (as desired)		
<b>Hours</b>		<b>5-14</b>
<b>Spring</b>		
CANB 7610 or CANB 7602	Pathobiology of Cancer Mini-Course or Special Topics in Cancer Biology	1
CANB 7650	Research in Cancer Biology	1-10
CANB 7613	Research Seminars and Journal Club	1
Electives (as desired)		
<b>Hours</b>		<b>3-12</b>
<b>Summer</b>		
CANB 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>9-36</b>

### Third Year

Course	Title	Hours
<b>Third Year</b>		
<b>Fall</b>		
CANB 7650	Research in Cancer Biology <sup>OV3</sup>	1-10
CANB 7613	Research Seminars and Journal Club	1
Electives (as desired)		
<b>Hours</b>		<b>2-11</b>
<b>Spring</b>		
CANB 8990	Doctoral Thesis	1-10
CANB 7613	Research Seminars and Journal Club	1
Electives (as desired)		
<b>Hours</b>		<b>2-11</b>
<b>Summer</b>		
CANB 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>5-32</b>

## Fourth Year & Beyond

Code	Title	Hours
CANB 8990	Doctoral Thesis	1-10
Electives (as desired)		

## Learning Objectives

The Ph.D. program in Cancer Biology trains graduate students to become proficient and successful investigators who are able to:

1. Demonstrate a basic knowledge of central concepts in the biomedical sciences.
2. Understand the current concepts in Cancer Biology.
3. Read and critically evaluate the scientific literature.
4. Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
5. Orally communicate ideas and research results effectively.
6. Effectively communicate ideas and research results in written form.
7. Integrate and apply the communication and research skills through oral presentations at scientific seminars, conferences, and other venues, submission of competitive applications for research funding, authorship of abstracts, peer-reviewed publications, and a thesis dissertation.

### Training Goals

Training in the Cancer Biology PhD Program is based on six comprehensive training fundamentals that strive to integrate knowledge bases with interrelated skills.

### Laboratory based training

Through conduct of laboratory-based research trainees utilize their didactic knowledge base; learn experimental design and hypothesis testing, implementation and problem solving, data interpretation and hypothesis revision, and oral and written communication skills.

### Didactic knowledge base

Our coursework provides students with a firm foundation in cancer biology and innovative technologies to enable them to conduct the most relevant and cutting-edge research.

### Hypothesis driven research

Our training includes a strong emphasis on skill development for hypothesis generation and testing. These skills are emphasized in course work, journal clubs, written and oral communication, clinical exposure and laboratory research.

### Clinical relevance

We believe that understanding the patient experience and the clinical relevance of their laboratory research will help students to better focus their research plan and develop more nuanced hypotheses. Many clinical related opportunities are available including clinic shadowing and special topics courses that include options to learn about clinical trial design, drug resistance, drug targeting of cancer subtypes, etc.

### Communication skills

Research advances are only achieved if scientific discovery is effectively communicated to the rest of the scientific community and the public. Written and oral presentation skills are developed by presentations in seminars and journal clubs, written research proposals and fellowship applications.

### Career and professional development

Opportunities for professional development are available throughout a student's matriculation. These include strengths and goals evaluation, mentoring by the primary mentor and research advisory committee, exposure to various scientific career paths, and professional networking at scientific meetings.

### BIOS 6606 - Statistics for the Basic Sciences (3 Credits)

This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions: Enrollment in UCD-AMC graduate program or permission of the instructor. Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

### BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)

Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

### BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)

Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

### CANB 7600 - Molecular Mechanisms of Cancer (4 Credits)

This is an advanced course that will focus on mechanisms of cancer initiation and progression. The course will include didactic presentations, primary literature analysis and workshops. The course is open to all graduate students but requires some prior knowledge of Cancer Biology. Grading Basis: Letter Grade  
Typically Offered: Spring.

### CANB 7602 - Special Topics in Cancer Biology (1 Credit)

Special topics of particular interest to graduate students in the Cancer Biology program. Registration requires department approval. Max hours: 4 credits/4 topics. Requisite: 008754  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Typically Offered: Spring.

### CANB 7610 - Pathobiology of Cancer Mini-Course (1 Credit)

Provide understanding of clinical issues associated with human cancer. Contains didactic and lab components. The latter will focus on pathology of human tumors at macroscopic/microscopic levels. Students will gain understanding of cancer diagnosis/epidemiology/treatment through student of specific tumor types. Prerequisite: Students are required to take this course twice during their time in the CANB program. IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Typically Offered: Spring.

**CANB 7613 - Research Seminars and Journal Club (1 Credit)**

Current research topics in experimental pathology, virology, and tumor biology. Graduate students and faculty presentations.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7620 - Histophysiology (3 Credits)**

Discussions of cell interactions, tissue physiology, and renewal based upon the histologic cell types and structures present. Where pertinent, pathologic alterations will be introduced to facilitate identification of the important normal functions/structures.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CANB 7640 - Bioinformatics (2 Credits)**

This course introduces basic concepts of bioinformatics needed to perform large-scale genomic data mining. A computer workshop will provide students with the relevant and minimal skills to analyze, access and visualize high-throughput data using open source programs and public databases. Prerequisites: IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809 ; Corequisite: BIOS 6606

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7650 - Research in Cancer Biology (1-10 Credits)**

Research work in cancer biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CANB 7660 - Advanced Topics: CANB (1 Credit)**

The specific topics covered in this course vary from year to year. For Fall 2011 the topic will be "Cancer cells and their environment: how the extracellular milieu influences tumor progression" offered by Dr. Schedin.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7680 - Hypothesis Development and Experimental Design (3 Credits)**

Students will discuss recent research papers and develop new hypotheses that extend the findings in the papers. Research proposals to test the hypothesis will be written and an oral defense of the proposal will be performed. Prereq: CANB 7600, IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7690 - Grant Writing in Cancer Biology (1 Credit)**

This course will use didactic presentations and writing workshops to develop a fellowship grant in the NIH style. Focus will be on grantsmanship, persuasive writing and the peer review system. This course will run consecutively with CANB7600. Corequisite with CANB 7600

Grading Basis: Letter Grade

Typically Offered: Spring.

**CANB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in cancer biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PHCL 7605 - Responsible Conduct of Research (1 Credit)**

The Department of Pharmacology in the University of Colorado School of Medicine organizes and offers an interactive course during the fall semester entitled "Responsible Conduct of Research". The course is designed to inform students, trainees and faculty to the NIH requirements for ethical and responsible research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

## Policies

**Publication Requirement:** Publications are the culmination of the research done in the lab. It is the obligation of all scientists to share their findings with their peers and the public. Therefore, it is a requirement of the program that students who matriculated prior to 2016 will have a minimum of one first author publication submitted for publication prior to their thesis defense. Students who matriculated in the fall of 2016 or after are required to have a minimum of one first author publication published prior to their thesis defense. Except under exceptional circumstances, co-first author publications will not fulfill this requirement. Please start working towards this goal as soon as you enter your thesis lab.

## Contact Us

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## Cell Biology, Stem Cells & Development (PhD)

### Overview

In the Cell Biology, Stem Cells and Development (CSD) PhD program, our students utilize hypothesis-driven experimental approaches and cutting edge technologies to pursue important questions from basic mechanisms in developmental and cell biology to translational applications of stem cell biology.

CSD students and faculty have common interests in understanding the molecular and cellular mechanisms that underlie development, disease, stem cell biology and regeneration. This common curiosity promotes extensive interaction among labs and creates a fantastic intellectual environment. Our CSD Program is structured to provide training in hypothesis-driven experimental approaches coupled with cutting edge technologies. We foster creativity and independence, enabling students

to pursue important questions at the junctures between the fields of cell, developmental, and stem cell biology.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online application
  - Personal Statement: A roughly one-page personal statement describing the applicant's career goals and purpose for seeking a Cell Biology, Stem Cells & Development PhD
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Past Work Statement
  - Three recommendations: to be completed by people who know your professional, academic and/or personal achievements or qualities well. As such, references must be from professional contacts, such as employers, supervisors, former faculty, preceptors, or professional colleagues. References from clergy, family members, friends or politicians will not be accepted.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars) for domestic applicants. Checks or money orders should be made out to the University of Colorado.
- Interview: After the application is complete a telephone or video interview will be arranged with the applicant and around 6 faculty members. This interview will afford the program the opportunity to understand the needs of the applicant and for the candidate to ask questions. The interview process is designed to assess the applicant's knowledge of the profession, communication, and ability to perform in a positive, professional manner when working with others. To be considered for admission, applicants must participate in the interview process.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

**OR** Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

International students must meet ALL of the requirements above and those required by International Admissions; additionally, their application fee is \$75 U.S. Dollars.

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science <sup>Core</sup> Topics A	1-6
BMSC 7810	Core Topics in Biomedical Science <sup>Core</sup> Topics B	1-6
CSDV 7650	Research: CSDV <sup>Section 001</sup>	1-5

CSDV 7650	Research: CSDV <sup>Section 002</sup>	1-5
<b>Hours</b>		<b>10-28</b>
<b>Spring</b>		
CSDV 7650	Research: CSDV <sup>Section 001</sup>	1-5
CSDV 7605	Stem Cells and Development: An Integrated Approach	3-4
CSDV 7606	Critical Analysis of Research in CSD	3
<b>Hours</b>		<b>7-12</b>
<b>Summer</b>		
CSDV 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>18-50</b>

### Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
CSDV 7000	Cells, Stem Cells, and Development: Advanced Topics Discussion	1
CSDV 7650	Research: CSDV <sup>Section 0V1</sup>	1-5
MOLB 7950	Informatics and Statistics for Molecular Biology	4
<b>Hours</b>		<b>6-10</b>
<b>Spring</b>		
CSDV 7650	Research: CSDV <sup>Section 0V1</sup>	1-5
CSDV 7000	Cells, Stem Cells, and Development: Advanced Topics Discussion	1
<b>Hours</b>		<b>2-6</b>
<b>Summer</b>		
CSDV 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>9-26</b>

### Third Year & Beyond

Course	Title	Hours
<b>Third Year</b>		
<b>Fall</b>		
CSDV 7605 or CSDV 8990	Stem Cells and Development: An Integrated Approach (ask Program Administrator) or Doctoral Thesis	3-4
CSDV 7000 or CSDV 7100	Cells, Stem Cells, and Development: Advanced Topics Discussion (ask Program Administrator) or Advanced Writing Workshop	1
<b>Hours</b>		<b>4-5</b>
<b>Spring</b>		
CSDV 7650 or CSDV 8990	Research: CSDV or Doctoral Thesis	1-5
CSDV 7000 or CSDV 7100	Cells, Stem Cells, and Development: Advanced Topics Discussion ((ask Program Administrator)) or Advanced Writing Workshop	1
<b>Hours</b>		<b>2-6</b>



**Summer**

CSDV 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>7-21</b>

## Learning Objectives

The PhD program in Cell Biology, Stem Cells and Development trains graduate students to become proficient and successful investigators who are able to:

1. Demonstrate a basic knowledge of central concepts in the biomedical sciences.
2. Understand the current concepts in Cell Biology, Stem Cell Biology and Development.
3. Read and critically evaluate the scientific literature.
4. Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
5. Present research results in peer-reviewed publications and in a dissertation.
6. Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
7. Write a competitive application for research funding.
8. Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

## Courses

### BMSC 7650 - Research in Biomedical Sciences (1-3 Credits)

Research rotation for students in the biomedical sciences in PhD program. Prereq: Consent of Instructor. Previously offered as IDPT 7650  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 20.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

### BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)

Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

### BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)

Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

### CSDV 7000 - Cells, Stem Cells, and Development: Advanced Topics Discussion (1 Credit)

This course is a student-led paper discussion focusing on advanced topics pertaining to cell biology, stem cells, and developmental biology. Students will select, present, and discuss primary articles on diverse topics within these fields. Restriction: Students in the CSD program only, 2nd year and beyond.  
Grading Basis: Pass/Fail Only  
Repeatable. Max Credits: 6.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring.

### CSDV 7100 - Advanced Writing Workshop (1 Credit)

This course is a student-led writing workshop focusing on developing writing skills through submission, editing, and discussion of drafts. Draft types will be chosen by the students enrolled and will include manuscripts, these, and documents related to career development. Students must have completed/passed their comprehensive exam in respective program; priority to CSDV PhD students.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall, Spring.

### CSDV 7605 - Stem Cells and Development: An Integrated Approach (3-4 Credits)

Integrative introductory course incorporating the related fields of Cell Biology/Developmental Biology/Stem Cells. Through lectures, contemporary literature discussions, student presentations, enrollees will gain a sophisticated understanding of the biological concepts/experimental approaches underlying current understanding of cell, developmental, and stem cell biology. Pre-Requisite: IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 4.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

### CSDV 7606 - Critical Analysis of Research in CSD (3 Credits)

First-year students will learn to critically evaluate scientific literature in preparation for writing and critiquing research grant proposals. Primary literature will focus on cell and developmental biology related to CSDV 7605. Each session concludes with written mini-proposals and peer critiques. For CSDV & BSP first year students. If possible, limit to CSDV-PHD and BMSC-PHD plans. Else: Prerequisite: IDPT 7806 & 7810;  
Corequisite: CSDV 7605  
Grading Basis: Letter Grade  
Typically Offered: Spring.

### CSDV 7650 - Research: CSDV (1-5 Credits)

Research work in cell biology, stem cells and development. Prereq: Consent of the instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 10.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

### CSDV 8990 - Doctoral Thesis (1-10 Credits)

Doctoral Thesis work in Cell biology, Stem Cells and Development. Prereq: Consent of Instructor.  
Grading Basis: Letter Grade with IP  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

MOLB 7950 - Informatics and Statistics for Molecular Biology (4 Credits)  
This course covers the design and analysis of common molecular biology experiments with thorough coverage of statistical and informatic approaches to data analysis. The course begins with a “boot camp” that covers use of shell programming, R/R Studio, and Python scripting in bioinformatics. Pre-Req: MOLB-PhD or CSDV-PhD students only  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

Policies

Please refer to the Graduate School Policies page (p. 166).

Contact Us

Jeff Moore, PhD  
Program Director  
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303-724-6198

Caitlin Moloney  
Program Administrator  
Caitlin.Moloney@cuanschutz.edu  
303-724-3350

Computational Bioscience (PhD)  
Overview

The program was founded and is directed by Professor Lawrence Hunter, founder of the International Society for Computational Biology, and the popular ISMB and PSB conferences. The CPBS Program is globally recognized for its research and teaching of computational biology and bioinformatics at the University of Colorado’s Anschutz Medical Campus. The Program is designed to produce graduates with depth in computational methods and molecular biomedicine, an intimate familiarity with the science and technology that synthesizes the two, and the skills necessary to pioneer novel computational approaches to significant biomedical questions.

The Computational Bioscience Program of the University Of Colorado School Of Medicine is dedicated to training computational biologists who aspire to achieve excellence in research, education and service, and who will apply the skills they learn toward improving human health and deepening our understanding of the living world. The Computational Bioscience Program provides graduates with the foundation for a lifetime of continual learning. Our curriculum integrates training in computation and biomedical sciences with student research and teaching activities that grow increasingly independent through the course of the program. Our graduates are able to do independent computational bioscience research, to collaborate effectively with other scientists, and to communicate their knowledge clearly to both students and the broader scientific community.

Admissions Requirements

To apply for admission applicants must submit the following:

- Online application
- Personal Statement: A roughly one-page personal statement describing the applicant’s career goals and purpose for seeking a Computational Bioscience PhD

- Resume: The applicant’s current resume or curriculum vitae, including professional work/practice since graduating with a bachelor’s degree (or equivalent).
- Past Work Statement
- Three recommendations: to be completed by people who know your professional, academic and/or personal achievements or qualities well. As such, references must be from professional contacts, such as employers, supervisors, former faculty, preceptors, or professional colleagues. References from clergy, family members, friends or politicians will not be accepted.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars) for domestic applicants. Checks or money orders should be made out to the University of Colorado.
- Interview: After the application is complete a telephone or video interview will be arranged with the applicant and around 6 faculty members. This interview will afford the program the opportunity to understand the needs of the applicant and for the candidate to ask questions. The interview process is designed to assess the applicant’s knowledge of the profession, communication, and ability to perform in a positive, professional manner when working with others. To be considered for admission, applicants must participate in the interview process.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: graduateadmissions@ucdenver.edu

International students must meet ALL of the requirements above and those required by International Admissions; additionally, their application fee is \$75 U.S. Dollars.

Degree Requirements  
First Year

Course	Title	Hours
Year 1		
Fall		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science Topics A	1-6
BMSC 7810	Core Topics in Biomedical Science Topics B	1-6
CPBS 7711	Methods and Tools in Biomedical Informatics	4
CPBS 7605	Ethics in Bioinformatics	1
Hours		13-23
Spring		
CPBS 7712	Research Methods in Biomedical Informatics	4
CPBS 7605	Ethics in Bioinformatics <sup>Section 001</sup>	1
CPBS 7605	Ethics in Bioinformatics <sup>Section 0V3</sup>	1
Hours		6

**Summer**

CPBS 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>20-39</b>

**Second Year**

Course	Title	Hours
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**Year 2****Fall**

BIOS 6601	Applied Biostatistics I	3
Or take 1 of the following courses:		
BIOS 6611	Biostatistical Methods I	
BIOS 6631	Statistical Theory I	
CPBS 7605	Ethics in Bioinformatics	1
<b>Hours</b>		<b>4</b>

**Spring**

CPBS 7605	Ethics in Bioinformatics	1
<b>Hours</b>		<b>1</b>

**Summer**

CPBS 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>6-15</b>

**Third Year & Beyond**

Course	Title	Hours
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**Year 3****Fall**

CPBS 7605 or CPBS 8990	Ethics in Bioinformatics (Confirm with Program Administrator) or Doctoral Thesis	1
<b>Hours</b>		<b>1</b>

**Spring**

CPBS 7605 or CPBS 8990	Ethics in Bioinformatics (Confirm with Program Administrator) or Doctoral Thesis	1
<b>Hours</b>		<b>1</b>

**Summer**

CPBS 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>3-12</b>

**Learning Objectives****Educational Goals and Objectives**

**Knowledge Goals** - Graduates demonstrate their knowledge of core concepts and principles of computational bioscience, and the ability to apply computation to gain insight into significant biomedical problems. This knowledge includes mastery of the fundamentals of biomedicine, statistics and computer science, as well as proficiency in the integration of these fields. Graduates contribute to the discovery and dissemination of new knowledge.

**Knowledge Objectives**

1. Demonstrate knowledge of the scientific principles that underlie the current understanding of molecular biology, statistics and computer science.
2. Demonstrate an ability to productively integrate knowledge from disparate fields to solve problems in biomedicine using computational methods.
3. Demonstrate knowledge of the types and sources of data most commonly used in computational bioscience, including knowledge of all major public data repositories.
4. Demonstrate the knowledge of the classes of algorithms most often applied in computational bioscience, and their domains of applicability.
5. Demonstrate an understanding of the principles and practice of the scientific method as applied in computational bioscience, including experimental design, hypothesis testing, and evaluation of computational systems.

**Communication Skills** Communication Skills Goals - Graduates demonstrate interpersonal, oral and written skills that enable them to interact productively with scientists from both biomedical and computational domains, to clearly communicate the results of their work in appropriate formats, and to teach others computational bioscience skills. Graduates are able to bridge the gap between biomedical and computational cultures.

**Communication Skills Objectives**

1. Communicate effectively, both orally and in writing, in an appropriate range of scientific formats, including formal presentations, collaborative interactions, and the critique of others' work.
2. Demonstrate familiarity with both biomedical and computational modes of expression, and be able to communicate clearly across disciplinary boundaries.
3. Demonstrate commitment and skill in teaching to and learning from students, colleagues, and other members of the scientific community.

**Professional Behavior** Professional Behavior Goals - Graduates demonstrate the highest standards of professional integrity and exemplary behavior, as reflected by a commitment to the ethical conduct of research, continuous professional development, and thoughtfulness regarding the broader implications of their work.

**Professional Behavior Objectives**

1. Act in an ethically responsible manner, displaying integrity, honesty, and appropriate conduct at all times.
2. Recognize the limits of one's knowledge, skills, and behavior through self-reflection and seek to overcome those limits.
3. Always consider the broad significance of one's professional actions, including their implications for society and the living world.

**Self-Directed and Life Long Learning Skills** Self-Directed and Life Long Learning Goals - Graduates demonstrate habits and skills for self-directed and life-long learning, and recognize that computational bioscience is a rapidly evolving discipline. Our focus is on the development of adaptive, flexible and curious scientists able to comfortably assimilate new ideas and technologies during the course of their professional development.

**Self-Directed and Life Long Learning Skills Objectives** 1. Recognize the need to engage in lifelong learning to stay abreast of new technologies and scientific advances in multiple disciplines. 2. Locate, evaluate and

assimilate relevant new knowledge and techniques from a wide variety of sources.

## Courses

### BIOS 6606 - Statistics for the Basic Sciences (3 Credits)

This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions: Enrollment in UCD-AMC graduate program or permission of the instructor. Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

### BIOS 6611 - Biostatistical Methods I (3 Credits)

This first course in applied statistics covers basic descriptive methods and probability; parametric and nonparametric inference for the one- and two-sample location problem; ANOVA, ANCOVA, and multiple linear regression. Matrix notation, R, and SAS are used. Prerequisite: differential calculus or permission of instructor. Grading Basis: Letter Grade  
A-PUBH BIOS  
Typically Offered: Fall.

### BIOS 6631 - Statistical Theory I (3 Credits)

This course presents an introductory coverage of the theory of discrete and continuous random variables and applications to statistical problems. Topics include probability theory, transformations and expectations, common families of distributions, multiple random variables, and properties of a random sample. Prereq: Differential and integral calculus. Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

### BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)

Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806. Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

### BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)

Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810. Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

### CPBS 7605 - Ethics in Bioinformatics (1 Credit)

Discussions of professional conduct, social implications of research and questions raised by biomedical research, with an emphasis on topics relevant to computational biologists. Active student participation is required. Offered every other year. Grading Basis: Letter Grade  
Typically Offered: Fall, Spring.

### CPBS 7711 - Methods and Tools in Biomedical Informatics (4 Credits)

An introduction to algorithms for the theory and practice of bioinformatics and computational biology. Topics include: 1) Experimental design; 2) Statistical concepts; 3) Sequence alignment; 4) networks and systems biology. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

### CPBS 7712 - Research Methods in Biomedical Informatics (4 Credits)

This course focuses on application of algorithms to analysis of different types of big data and provides training in how to plan, develop, execute and report on research in computational biology. Topics include: 1) Molecular Data; 2) Biomedical data; 3) Drug/disease data. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

### CPBS 8990 - Doctoral Thesis (1-10 Credits)

Doctoral Thesis work in Computational Bioscience. Prerequisites: Permission of instructor. Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 10.  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

### Lawrence Hunter, PhD

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### Katerina Kechris, PhD

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### Caitlin Moloney

Program Administrator  
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303-724-3350

## Human Medical Genetics & Genomics (PhD)

## Overview

The Human Medical Genetics and Genomics Graduate Program (HMGGP) at CU Anschutz is an interdisciplinary, interdepartmental program designed to coordinate outstanding graduate training and research opportunities in all aspects of Human and Medical Genetics. The HMGGP faculty are committed to a dynamic and outstanding program that provides training and mentorship to the next generation of leaders in the fields of human and medical genetics and genomics.

The Human Genome Project and a diverse group of technological advances have brought about a revolution in almost all fields of medicine and biomedical research. The availability of genomic DNA sequences

of humans and other species has enabled discovery of genes critical to development and disease and genetic variations that predispose to common debilitating diseases. Furthermore, tests to rapidly identify genetically susceptible individuals are being developed, and new technologies to treat or even prevent these diseases are being brought on line. Genetics and genomics provides the foundation for "Precision" or "Personalized" medicine which will bring about improved health, longevity, and quality of life.

It is the mission of the Human Medical Genetics and Genomics Graduate Program to be at the forefront of this revolution. The Human Medical Genetics and Genomics Graduate Program builds on close engagement with our students, who are integral to our ongoing mission to build towards the future. The Program is continually adding new Training Faculty, providing students with an outstanding group of scientists from whom to select as Thesis Advisors and mentors. Our goal is to provide students a world-class graduate training experience in an interactive and collaborative environment that allows for an individualized learning experience.

## Admission Requirements

### Admission Philosophy

Students are selected on the basis of past academic performance, previous laboratory research experience, and, where possible, individual interviews. We select students who show high intellectual achievement, creativity, independence, and strong motivation to become successful scientists. Our Program recognizes that students who are attracted to a career in genetics and genomics can have highly varied backgrounds.

### Admissions Requirements

**Coursework** | Although there are no formal undergraduate course requirements, students with a solid undergraduate foundation in mathematics and biological and chemical sciences have performed best in the Program. It is suggested that applicants have completed courses in biology, chemistry (general and organic), physics, genetics, calculus, and statistics before entering the Program.

**Graduate Record Exam (GRE)** | The GRE General Test and Subject Test are not required for application to HMGGP but will be considered if submitted. To send scores directly to HMGGP, please designate GRE code 4875.

How to Apply

**APPLICATION WILL OPEN ON SEPTEMBER 1<sup>ST</sup>.**

**DEADLINE FOR APPLICATIONS IS DECEMBER 1<sup>ST</sup>.**

**PRIORITY DEADLINE FOR INTERNATIONAL APPLICANTS IS NOVEMBER 1<sup>ST</sup>.**

To apply for admission applicants must submit the following:

- Online Graduate School application (included in the application is the Research Statement, Professional Background, and Future Goals Statement, and Colorado residency form).
- A \$50.00 domestic and \$75.00 international non-refundable application fee. No application will be processed unless this fee is paid.
- Three (3) letters of recommendation.
- GRE test scores (optional). Use GRE code 4875 (optional)

- TOEFL or IELTS scores and financial support verification (international students only).
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come from the issuing institution directly to the University of Colorado Denver Anschutz Medical Campus graduate program. Use the following address:

Electronic Transcripts should be sent  
to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

If sending a physical transcript, please mail to:

Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364

## Degree Requirements

### First Year Students

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science	1-6
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics (Sections 001 AND 002)	1-10
<b>Hours</b>		<b>9-25</b>
<b>Total Hours</b>		<b>9-25</b>

Course	Title	Hours
<b>First Year</b>		
<b>Spring</b>		
HMGP 7600	Survey of Human Genetics	3-4
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics	1-10
<b>Hours</b>		<b>5-17</b>
<b>Total Hours</b>		<b>5-17</b>

Course	Title	Hours
<b>First Year</b>		
<b>Summer</b>		
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

### Second Year Students

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
HMGP 7610	Topics in Human Genetics	1-3



HMGP 7650	Research in Human Medical Genetics (Section 0V3)	1-10
<b>Hours</b>		<b>2-13</b>
<b>Total Hours</b>		<b>2-13</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Spring</b>		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 7650	Research in Human Medical Genetics (Section 0V3)	1-10
<b>Hours</b>		<b>2-13</b>
<b>Total Hours</b>		<b>2-13</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Summer</b>		
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

### Third Year Students

Course	Title	Hours
<b>Third Year</b>		
<b>Fall</b>		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>2-13</b>
<b>Total Hours</b>		<b>2-13</b>

Course	Title	Hours
<b>Year 3</b>		
<b>Spring</b>		
HMGP 7610	Topics in Human Genetics	1-3
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>2-13</b>
<b>Total Hours</b>		<b>2-13</b>

Course	Title	Hours
<b>Third Year</b>		
<b>Summer</b>		
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

### Fourth Year Students & Beyond

Course	Title	Hours
<b>Year 4</b>		
<b>Fall</b>		
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

Course	Title	Hours
<b>Year 4</b>		
<b>Spring</b>		
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

Course	Title	Hours
<b>Year 3</b>		
<b>Summer</b>		
HMGP 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

## Learning Objectives

The PhD program in Human Medical Genetics trains graduate students to become proficient and successful investigators who are able to:

- Demonstrate a basic knowledge of central concepts in the biomedical sciences.
- Understand current concepts in human genetics and genomics.
- Read and critically evaluate the scientific literature.
- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Present research results in peer-reviewed publications and in a dissertation.
- Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
- Write a competitive application for research funding.
- Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

## Courses

**BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)**  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806

Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

**BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**  
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

**HMGP 7600 - Survey of Human Genetics (3-4 Credits)**

Survey of human genetics, including Mendelian and other types of inheritance, chromosomes and cytogenetics, molecular and biochemical basis of genetic disease, quantitative genetics and gene mapping, developmental and cancer genetics, clinical genetics, and genetic screening and prenatal diagnosis.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**HMGP 7610 - Topics in Human Genetics (1-3 Credits)**

Two-semester course based on weekly HMGP seminar series. Students meet with speakers and discuss seminar or related topics and arranged readings. Grade based on class participation and required paper and presentation. Required for 1st, 2nd and 3rd year HMGP students.

Prerequisite: Graduate standing.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**HMGP 7630 - Independent Study in Human Medical Genetics (1-2 Credits)**

Independent study is intended to permit students to carry out directed reading and discussion with a specific faculty member other than their thesis advisor. Consent of the faculty member offering the independent study and the program director are required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**HMGP 7650 - Research in Human Medical Genetics (1-10 Credits)**

Research work in human medical genetics. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**HMGP 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in human medical genetics. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Tamim Shaikh, PhD, Program Director**

Tamim.Shaikh@cuanschutz.edu | 303.724.5399

## Immunology (PhD)

### Overview

The doctoral program in Immunology at the University of Colorado Anschutz Medical Campus trains students in diverse areas of immunology that includes innate and adaptive immunity, host-pathogen

interactions, tumor immunity, autoimmunity, immune deficiencies, and vaccine development.

The Immunology Graduate Program at the University of Colorado Anschutz Medical Campus is amongst the most prominent basic Immunology graduate research training Programs in the country. Since its founding in 1989, our Program has conferred over 150 PhD degrees to students from a variety of ethnic and cultural backgrounds. Our curriculum combines formal coursework with mentoring by an engaged faculty in a collaborative environment. The Program draws from the academic strengths of three institutions that contribute significant resources and house our training faculty and students – The CU Denver | Anschutz, National Jewish Health, and the Barbara Davis Center for Childhood Diabetes.

Students in the program receive comprehensive training in diverse areas of immunology and gain the intellectual foundation and technical expertise necessary for performing cutting-edge basic and translational research. Trainees also gain skills in data analysis, technical writing, and oral presentation to further prepare them for making impactful contributions throughout their careers – whether they pursue careers within or outside of academia.

## Admissions Requirements

Applicants with proven scientific ability, indicated through performance in a college level science program and/or in a research laboratory. Prior research laboratory experience ensures that students have basic skills and are familiar with the laboratory research environment. We strongly encourage applications from qualified underrepresented minorities. The Program and members of our training faculty have a strong commitment to inclusivity and a solid history of success in training minority and other under-represented student populations.

**Applications will open September 1.**

**DEADLINE FOR APPLICATIONS IS DECEMBER 1st.**

**There are 3 ways to enter the Immunology Program:**

- Apply directly to the Immunology Graduate Program.
- Apply to the Biomedical Sciences Umbrella Program and join the Immunology Graduate Program after your 1st year.
- Those interested in pursuing an MD/PhD with research interests in Immunology may apply to the Medical Scientist Training Program and complete their PhD portion through Immunology. Note: the MSTP follows a separate application process with different deadlines. Please visit the MSTP website for more information.

Applications will open September 1, and all application and supplemental materials are due no later than December 1. Applications received after December 1 may not be considered.

To apply for admission applicants must submit the following:

- **Online Graduate School application**
- A \$50.00 domestic and \$75.00 international non-refundable application fee.
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come directly from the issuing institution.

Electronic Transcripts should be sent to [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

### OR

Mail a physical copy to:

University of Colorado Denver  
Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364

- Three to five (3-5) letters of recommendation. Letters should be from individuals such as college professors or faculty mentors who are familiar with your academic and/or laboratory achievements. Such letters should be submitted electronically through the on-line application.
- GRE scores are no longer required for admission.
- International Applicants only: Students whose native language is not English or who have completed their studies at an institution where English was not the language of instruction, must demonstrate English language proficiency by submitting scores of the Test of English as a Foreign Language (TOEFL) or its equivalent. **Visit International Admissions for more information.**

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
IMMU 7650	Research in Immunology <sup>001</sup>	1-5
IMMU 7650	Research in Immunology <sup>002</sup>	1-5
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science (Topic A)	1-6
BMSC 7810	Core Topics in Biomedical Science (Topic B)	1-6
BIOS 6606	Statistics for the Basic Sciences	3
<b>Hours</b>		<b>13-31</b>
<b>Spring</b>		
IMMU 7650	Research in Immunology <sup>001</sup>	1-5
IMMU 7662	Immunology	6
<b>Hours</b>		<b>7-11</b>
<b>Summer</b>		
IMMU 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>21-52</b>

### Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
IMMU 7607	Science as a Profession	1
IMMU 7650	Research in Immunology <sup>0V3</sup>	1-5
IMMU 7602	Special Topics in Cancer Immunology	1

IMMU 7604	Special Topics in Signal Transduction in the Immune System	1
IMMU 7608	Immunology of Infection	1
IMMU 7609	Immunology of Autoimmune Diseases	1
<b>Hours</b>		<b>6-10</b>
<b>Spring</b>		
IMMU 7650	Research in Immunology <sup>0V3</sup>	1-5
IMMU 7605	Workshop in Scientific Writing	1
IMMU 7603	Special Topics-Immunologic Basis of Human Disease	1
<b>Hours</b>		<b>3-7</b>
<b>Summer</b>		
IMMU 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>10-27</b>

## Courses

BIOS 6606 - Statistics for the Basic Sciences (3 Credits)

This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions: Enrollment in UCD-AMC graduate program or permission of the instructor. Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)

Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)

Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

IMMU 7602 - Special Topics in Cancer Immunology (1 Credit)

This interactive course aims to introduce important concepts, models and approaches in cancer immunology. The focuses are mechanisms relevant to the immune response in the context of cancer development and immunotherapy. Students are assessed via presentations, participation, and a paper.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**IMMU 7603 - Special Topics-Immunologic Basis of Human Disease (1 Credit)**

Perform translational studies, as they either test hypotheses established in mouse models or lead to new testable hypotheses that will advance understanding of pathogenesis of human disease. Greater understanding of disease pathogenesis will allow for development of new treatment options. Prereq: IMMU 7662.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IMMU 7604 - Special Topics in Signal Transduction in the Immune System (1 Credit)**

In-depth course, designed primarily for immunology graduate students in their second year, who have completed IMMU 7602. The course covers selected topics (8 in all) encompassing a wide range of topics in signal transduction through receptors important in the immune system. Prereq: IMMU 7662.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IMMU 7605 - Workshop in Scientific Writing (1 Credit)**

This workshop will consist of one session weekly for students to be critiqued on writing assignments designed to provide basic training in writing grant proposals and manuscripts.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7607 - Science as a Profession (1 Credit)**

This course discusses ethical issues, conflicts of interest, and regulations for working with humans or animals. It also includes instruction on writing papers and grants, giving effective presentations and advice on finding jobs in academia and industry.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IMMU 7608 - Immunology of Infection (1 Credit)**

Students will discuss and present selections from the current literature on topics related to the interaction of the immune system with microbial causes of infectious diseases.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7609 - Immunology of Autoimmune Diseases (1 Credit)**

Following a brief introduction on autoimmune diseases by the instructor, the students will discuss and present assigned papers from the current literature on topics related to immune mechanisms and cell types leading to various autoimmune diseases.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IMMU 7650 - Research in Immunology (1-5 Credits)**

Research work in immunology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IMMU 7662 - Immunology (6 Credits)**

This course covers the basic principles of the immune system. Included are discussions on (I) the innate and adaptive immune responses, (II) the molecular and cellular basis of immune specificity and (III) aspects of clinical immunology.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IMMU 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in immunology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Learning Objectives

**Graduate education in general** | Post-baccalaureate education is an essential component in the development of future leaders, academicians, and scientists. The influence of graduate education on society reaches essentially all aspects of our lives including our safety, economy, health, and overall quality of life.

**Immunology program in specific** | The immune system has evolved to defend host organisms against the vast number of foreign agents that may be encountered throughout life and that are capable of compromising health and leading to possible death. A doctoral education in Immunology specifically trains individuals to not only define the mechanisms by which the immune system accomplishes this task but also to establish possible interventions that preclude, attenuate or neutralize these threats.

**The PhD program in immunology trains graduate students to become proficient and successful investigators who are able to:**

- Demonstrate a basic knowledge of central concepts in the biomedical sciences.
- Understand the current concepts in immunology.
- Read and critically evaluate the scientific literature.
- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Present research results in peer-reviewed publications and in a dissertation.
- Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
- Write a competitive application for research funding.
- Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Program Calendar

August – Department of Immunology & Microbiology Scientific Conference & Retreat

October – Immunology Program & Microbiology Program Student (only) Retreat

October – MPID T-32 Mini-symposium

Weekly – Research in Progress Seminar with the Microbiology Program

Weekly- Immunology Student Journal Club

Weekly – Speaker Series with Microbiology Program

Twice per year – Student Invited Speaker Seminar and meetings

Contact Us

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**Immunology Graduate Program**  
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Aurora, CO 80045

Integrated Physiology (PhD)

Integrated Physiology is a multidisciplinary PhD training program that prepares students for careers in biomedical research. Students in Integrated Physiology have opportunities to explore how cells, organ systems and organisms regulate complex physiological functions through integration of molecular, cellular and physiological mechanisms.

Entrance Requirements

The Integrated Physiology Program seeks highly motivated students with the strong backgrounds in quantitative sciences and a passion for biomedical research.

GPA and Test Scores (optional) | The average undergraduate GPA of accepted students is 3.40. If you are submitting GRE scores, take the exam no later than October so that their scores will be available to the Program.

Coursework and Research | Students seeking admission should have taken Organic Chemistry, Biology, General Physics, and college level mathematics through Calculus. Courses in Biochemistry, Physical Chemistry, Genetics and Physiology are recommended. Research experience is strongly recommended. Students with excellent records and research experience who lack specific courses are encouraged to apply. Where additional course-work is necessary to provide background of sufficient depth for our rigorous curriculum, supplemental courses or reading programs can be designed.

How to Apply

Application will open on September 1st.

DEADLINE FOR APPLICATIONS IS DECEMBER 1st.

PRIORITY DEADLINE FOR INTERNATIONAL APPLICANTS IS NOVEMBER 1.

To apply for admission applicants must submit the following:

- Online Graduate School application.
- A \$50.00 domestic and \$75.00 international non-refundable application fee [credit card (on-line only), check, or money order]. No application will be processed unless this fee is paid.
- Three (3) letters of recommendation.
- GRE test scores (optional)
- TOEFL or IELTS scores and financial support verification (international students only).
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come from the issuing institution directly to the University of Colorado Denver Graduate Admissions.

Electronic Transcripts should be sent to:  
graduateadmissions@ucdenver.edu

If sending a physical transcript, please mail to:  
Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364

International students must meet ALL of the requirements above and those required by International Admissions.

First Year

Course	Title	Hours
Year 1		
Fall		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science	1-6
BMSC 7650	Research in Biomedical Sciences	1-3
MSTP 7652	MSTP Advanced Topics	1-5
Hours		9-20
Total Hours		9-20
Course	Title	Hours
Year 1		
Spring		
BMSC 7650	Research in Biomedical Sciences	1-3
CANB 7620	Histophysiology	3
MSTP 7652	MSTP Advanced Topics	1-5
Hours		5-11
Total Hours		5-11
Course	Title	Hours
Year 1		
Summer		
IPHY 8990	Doctoral Thesis	1-10
Hours		1-10
Total Hours		1-10



## Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
BIOS 6606	Statistics for the Basic Sciences	3
IPHY 7650	Research in Integrated Physiology	1-10
IPHY 7652	Special Topics in Integrated Physiology	1-3
<b>Hours</b>		<b>5-16</b>
<b>Total Hours</b>		<b>5-16</b>

Course	Title	Hours
<b>Year 2</b>		
<b>Spring</b>		
IPHY 7650	Research in Integrated Physiology	1-10
IPHY 7652	Special Topics in Integrated Physiology	1-3
<b>Hours</b>		<b>2-13</b>
<b>Total Hours</b>		<b>2-13</b>

Course	Title	Hours
<b>Year 2</b>		
<b>Summer</b>		
IPHY 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

## Third Year & Beyond

Course	Title	Hours
<b>Year 3</b>		
IPHY 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

### Graduate education in general

Doctoral education is the foundation of future scholarship and the primary "engine" driving the research enterprise. It prepares future faculty and leaders in academia as well as in many other areas of industry, government, and society in general.

### Integrated Physiology program in specific

Understanding mechanisms underlying the function of various systems in the body that contribute to both normal and pathological physiology is the fundamental prerequisite for all applied research in biology. Doctoral education in Integrated Physiology trains students in basic integrated physiology concepts spanning multiple organ systems from molecular/cellular physiology to systems physiology using state of the art approaches.

The philosophy of our graduate program is to emphasize state-of-the-art research approaches at all stages; and that begins with the recruitment phase. We identify candidates with excellent undergraduate academic credentials, with a strong preference for those who have participated in independent research. During the first year in the program, students must complete three formal laboratory-based research rotations. Each research rotation is intended to examine testable hypotheses, as well as to provide exposure to new laboratory techniques. At the conclusion

of each rotation, a post-rotational seminar is presented to the Program Faculty and Students.

During the first two years in the program, students are required to take a number of courses to prepare them for research careers in physiology. These include a core course in molecular and cellular biology overseen by the Graduate School, and Program core courses in Comprehensive Physiology and Histophysiology. Additional requirements include courses in Ethics, Biostatistics, and Rigor & reproducibility. Beginning in the second year, a number of electives are also available emphasizing topics such as: neuropharmacology/neurobiology, cancer biology, bioinformatics, principles of pharmacology, advanced topics in molecular biology, cell and molecular signaling, and structural biology. Students are also required to participate in weekly Integrated Physiology Journal Clubs and Seminar Series throughout their time in the program.

The PhD program in Integrated Physiology trains graduate students to become proficient and successful investigators who are able to:

Demonstrate a basic knowledge of central concepts in the biomedical sciences.

Understand the current concepts in Integrated Physiology.

Read and critically evaluate the scientific literature relevant to physiology, in specific, and the basic and clinical biomedical sciences, in general.

Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.

Present research results in peer-reviewed publications and in a doctoral dissertation.

Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.

Understand the basis of writing and submitting competitive applications for research funding.

Be competent in self-evaluation of acquired skills and understand how these skills may be perceived by external peers.

Develop a mature and meaningful Personal Development Plan (PDP) that will facilitate attainment of career objectives.

BIOS 6606 - Statistics for the Basic Sciences (3 Credits)  
This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions: Enrollment in UCD-AMC graduate program or permission of the instructor. Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

**BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**  
 Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 20.  
 AMC-PHD PhD Students only  
 Typically Offered: Fall.

**CANB 7620 - Histophysiology (3 Credits)**  
 Discussions of cell interactions, tissue physiology, and renewal based upon the histologic cell types and structures present. Where pertinent, pathologic alterations will be introduced to facilitate identification of the important normal functions/structures.  
 Grading Basis: Letter Grade  
 A-GRAD Restricted to graduate students only.  
 Typically Offered: Spring.

**IPHY 7650 - Research in Integrated Physiology (1-10 Credits)**  
 Research work in Integrated Physiology. Prerequisite: Consent of Instructor.  
 Grading Basis: Letter Grade with IP  
 Repeatable. Max Credits: 99.  
 A-GRAD Restricted to graduate students only.  
 Typically Offered: Fall, Spring, Summer.

**IPHY 7652 - Special Topics in Integrated Physiology (1-3 Credits)**  
 This course provides instruction in a specialized area of Integrated Physiology. Course content and the extent of the course varies from year to year. Prerequisite: Enrollment in PhD Program in Graduate School.  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 3.  
 A-GRAD Restricted to graduate students only.  
 Typically Offered: Fall, Spring, Summer.

**IPHY 8990 - Doctoral Thesis (1-10 Credits)**  
 Doctoral thesis work in physiology.  
 Grading Basis: Letter Grade with IP  
 Repeatable. Max Credits: 99.  
 A-GRAD Restricted to graduate students only.  
 Additional Information: Report as Full Time.  
 Typically Offered: Fall, Spring, Summer.

Please refer to the Graduate School Policies page (p. 166).

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## Medical Scientist Training Program (MD/PhD)

### Overview

The Medical Scientist Training Program provides rigorous training for students interested in a career in clinical medicine and basic science research.

The MST Program's mission is to provide students with the breadth and depth of training necessary to excel as clinician scientists.

Colorado has strengths in Molecular and Cellular Biology, Immunology, Epidemiology, Mechanical Engineering, Biomedical Engineering, Virology, Neuroscience, Endocrinology, Pharmacology, and Cancer Biology, which provides an exciting spectrum of research opportunities for MSTP students.

The MSTP Admissions Committee is looking for individuals with a demonstrated commitment to medical research and service to community. The committee looks at applicants as whole individuals, equally assessing academic achievement with past experience. Letters of recommendation, substantive bench research experience, test scores, and life experiences are all considered.

As a federally funded program, the University of Colorado MSTP is National in scope. It is open to US citizens and Permanent Residents of all 50 states, the District of Columbia, and Puerto Rico. MSTP actively recruits women and underrepresented students. We are committed to the enrollment of a diverse body of talented students.

## Application Process

### Application Information

#### 2022 Entering Class

Initial application to the MST Program at the University of Colorado involves the completion of the American Medical College Application Service (AMCAS) On-Line Application and the submission of the SOM secondary application and payment of fee.

The deadline for submission of a complete MSTP application via AMCAS is **November 30, 2021**. A complete application includes the following:

- **AMCAS Application** (must be submitted by October 15, 2021)
- School of Medicine **Secondary Application** and fee (must be received by November 30, 2021)
- **CASPer Exam** and **Altus Suite** Results (received by November 30, 2021). Altus Suite includes the following exams:
  - CASPer: a 60-90 minute online situational judgement test (SJT)
  - Snapshot: a 10-minute one-way interview with standardized questions
  - Duet: a 15-minute value-alignment assessment
- All **Letters of Recommendation**

## Recommendation Letters

The MSTP accepts three to five letters of recommendation (or a committee composite letter) submitted through AMCAS (<https://students-residents.aamc.org/applying-medical-school/faq/amcas-faq/>)

- Example letter writers include:
  - previous or current research mentors,
  - instructors, physicians or employers.
- References should come from individuals who know the applicant well enough to comment on their educational background.
- The MST Program has access to letters sent by electronic submission to the CU School of Medicine.

## AMCAS Instructions

The deadline for the AMCAS primary application submission is October 15, 2021.

- Applicants must instruct AMCAS to forward their AMCAS application to the University of Colorado.
- Applicants must select the MD/PhD Program Type on their application.

This will permit applicants to submit essays describing their interest in the combined MD/PhD program.

- Primary AMCAS Application Deadline is October 15, 2021
- Secondary Application Deadline is November 30, 2021

## Admission Requirements

### Degree and Coursework Requirements

The University of Colorado School of Medicine requires that students have a baccalaureate degree from an accredited college or university prior to matriculation.

The University of Colorado School of Medicine recognizes that the experiences and undergraduate academic experience of our applicants varies greatly. We encourage applicants to explore a diverse, interdisciplinary and balanced undergraduate education, encompassing the necessary foundational knowledge in the biomedical sciences and humanities. Students need to be adequately prepared in the scientific underpinnings of modern medicine and also understand the psychosocial elements that are critical to its practice.

Accordingly, we have moved away from traditional, specific course based requirements, and have revised our prerequisites and academic expectations such that students should provide evidence to demonstrate competencies in the life sciences, social sciences, physics and mathematics, based on the AAMC-HHMI Scientific Foundations for Future Physicians (<https://www.aamc.org/download/271072/data/scientificfoundationsforfuturephysicians.pdf>) and AAMC-Behavioral and Social Science Foundations for Future Physicians (<https://www.aamc.org/download/271020/data/behavioralandsocialsciencefoundationsforfuturephysicians.pdf>). These competencies, representing the cumulative knowledge, skills and commitment to scholarship needed to undertake training as a future physician, can be met through traditional and/or interdisciplinary courses of study in an accredited institution of higher learning, or by other educational, employment, service or life experiences.

Competitive applicants should demonstrate in-depth competency in each of the following areas of study, as reflected by their academic achievements and letters of recommendation.

**Biology:** Applicants should demonstrate an understanding of molecular and cellular biology, genetics, and the principles underlying the structure and function of organ systems and the regulation of human physiology.

**Chemistry/Biochemistry:** Applicants should demonstrate competence in the basic principles of chemistry as it pertains to living systems, and knowledge of how biomolecules contribute to the structure and function of cells and organs.

**Mathematics/Statistics and Physics:** Applicants should demonstrate competence in the basic principles of physics and mathematics underlying living systems and must be able to apply quantitative reasoning, statistical principles, and appropriate mathematics to describe or explain phenomena in the natural world. A basic understanding of statistics or biostatistics is required to comprehend the quantitative aspects of medicine and biomedical research.

***Social Sciences and Communication:*** It is important that applicants demonstrate competence in the humanistic understanding of patients as individuals and members of a families, communities, and society. Applicants should be aware of factors that influence individual, community, and societal decisions regarding health and health care delivery. Applicants are expected to speak, write, and read English fluently.

Students are encouraged to consider additional coursework in biochemistry, computer sciences, genetics, humanities, and social sciences. AP and CLEP courses, as well as on-line courses, are viewed with a degree of comparability to college courses, as long as the US accredited degree granting institution includes these credits on their transcript as fulfilling certain institutional requirements. Students who have AP or CLEP credit in the basic sciences are encouraged to take upper level courses in these areas. Courses taken abroad are treated comparably to traditional courses, as long as these credits are included on the transcript of a U.S. accredited degree-granting institution.

## MCAT

Students must take the Medical College Admissions Test (MCAT), with the oldest exam accepted no more than three years prior to matriculation year. For example, applicants applying for August 2021 matriculation must have MCAT results from January 2018 - October 2020. If the applicant takes the MCAT multiple times, the Admissions Committee will use the best one time composite score from that sitting.

## The CASPer Test - Computer-Based Assessment for Sampling Personal Characteristics

As a part of the supplemental (secondary) application, all applicants to the University of Colorado School of Medicine are required to complete an online assessment (CASPer), to assist with our selection process. Successful completion of CASPer is mandatory in order to maintain admission eligibility. CASPer results need to be sent to CUSOM by the noted distribution date located on the CASPer website (<https://takecasper.com/dates-times/>). Learn more about CUSOM and CASPer here: CUSOM and CASPer 2020-2021 US Medicine.pdf

## Letters of Recommendation

Applicants are required to obtain letters to support their candidacy for admission. We require three to five letters; letters can come from a faculty member, clinical experience, research experience, or a current job as the letter transmits cogent information about the applicant's work. Obtaining a letter from the employer who you are working with during the application year is highly recommended. Evidence of a successful engagement in a post-college experience is considered a valuable addition to other letters that also may be part of your file. Some colleges offer a pre-medical advising system and the committee writes letters for their students. A committee letter is sufficient to meet the medical school letter of recommendation requirements. All letters must be transmitted electronically through AMCAS' application process. We strongly recommend that letters not be from family friends or others who know the student only peripherally.

## Secondary Application and the Completion of the Applicant's File

Upon receipt and verification of the AMCAS application, the SOM Office of Admissions will email eligible applicants the link to our Secondary Application that is to be completed online and submitted by Dec. 15th of the application year. The secondary application consists of:

- Secondary application processing fee – **Fee is Non-refundable**
- CASPer test results

Completed secondary applications are forwarded to the MSTP admissions committee who perform a holistic review of applications and invite select applicants for an interview. Interview invitations are on a rolling basis – October through February.

## Application Fee Payments and/or Fee Waivers

Students invited to complete the secondary application must submit an application processing fee of \$100 with the secondary application. The application fee waiver will be granted **ONLY** to applicants who received approval from the AAMC Fee Assistance Program (FAP). **The secondary application fee is non-refundable.**

Students learn through a sequence of interdisciplinary Blocks and Threads that are designed to gradually build student competency in our mission of education, research, clinical care, and community service. At the University of Colorado, we provide future physicians scientists with the scientific, clinical, and communication skills necessary to develop and effectively deliver state-of-the-art health care to an increasingly diverse population.

Currently, MSTP students complete both required Medical and Graduate School Curricula, USMLE, Preliminary Graduate Exam and lab rotations during their first two years (MS1-2).

**Our curriculum Integrates basic science and clinical material throughout all phases; Encourages independent, self-directed learning; Promotes advanced clinical examination and clinical reasoning skills.**

## MSTP Specific Courses:

(For full course descriptions, please visit the Courses (p. 331) tab.)

- **Thesis Years - Foundations of Doctoring (MSTP 7655)** allows students to work with a physician scientist preceptor of their choosing during the duration of their PhD. This course is designed to allow the MSTP students to continue their clinical training during their thesis years. They will work in the clinic (or inpatient setting) with an academic physician-scientist who specializes in a clinical area of interest to the student. The goals of this course are to maintain and further the clinical skills learned during Phases I and II, to provide opportunities for MSTPs to engage in

clinical/translation scholarly activities, to allow MSTPs to sample potential career choices, and to minimize the anxiety often encountered upon re-entry into the clinics after an extended absence. By interacting at this early stage with a physician-scientist clinical mentor, MSTP students will experience first-hand how academic physicians can effectively and efficiently organize and spend their time. We anticipate that opportunities for establishing collaborations between their research and clinical mentors, involvement in clinical research, and writing of clinical reviews will emerge.

- **Molecules to Medicine** for MSTP pre-clinical students (MSTP 7805) is required for first year MSTP students. One or two students are assigned to a specific topic and are expected to present the background leading up to the paper(s) as well as what was done in the study, the conclusions, and implications of the work. All students in the class are expected to read (and understand) the selected paper(s) and be prepared to ask questions and/or discuss any figure in the paper. MSTP Faculty are selected by the course director, MSTP's Pre-Clinical Associate Director, and asked to lead a 2-hour session with students, providing 2 articles related to a topic of their choice that the student(s) will present on. The faculty member should provide context for the topic and help guide the discussion and presentations.
- **MSTP Seminar** (MSTP 7645) is a required course for first year MSTPs to attend once a week to hear and present summer lab rotation talks, as well as hear the thesis year MSTPs' research update talks. This seminar provides an opportunity for the students to also hear from invited guest speakers on topics such as Mental Health Services, Disability Services, and PhD Programs on both the Anschutz and Boulder Campus.
- **MSTP Reading with a Professor (MSTP 7652)** is intended for MSTP first year students to identify a mentor to meet on a weekly/biweekly basis to discuss papers that have been assigned by the mentor. MSTP students often choose their mentor based on who they will be doing a laboratory rotation allowing the focus of the meetings to be on papers relevant to the summer project with a written proposal at the end regarding the project. The choices of subject and format are up to the student and mentor. The student is expected to show initiative and responsibility in identifying the specific topic.
- **MSTP Clinical Capstone (MSTP 7755)** is a week-long (5-day) clinical immersion course designed to assist MSTP students' transition back to medical school. Students will follow 2-3 patients, present on rounds, call consultants, and discuss care plans with patients and their families. Additional didactic sessions will focus on logistical aspects of functioning on an inpatient team.
- **Summer Research Rotations – MSTPs are required to do a minimum of 2 lab rotations before choosing one to be their thesis lab for their PhD work.** Students begin their first required summer rotation after completion of the first year curriculum. Students complete a second required laboratory rotation after their second/LIC year. The principal purpose of the two rotations is to aid students in selecting a thesis advisor and to provide exposure to a variety of research problems and laboratory techniques. While rotating, students are encouraged to participate in all lab activities to get an idea of what it will be like to be a member of that particular lab. Students may complete a first rotation in the summer prior to starting Medical School. The choice of a research advisor and project is perhaps the most important decision of the student's first two years in the program. The quality of the projects underway in the laboratory, the influence of postdoctoral fellows and other students in the lab, the level of the advisor's involvement and the character of the advisor's relationship with the student will help to shape the rotation experience.

## Legacy Curriculum Diagram (for students currently in their PhD Years)

## Hybrid Curriculum Diagram (for the matriculating class of 2020 only)

## Trek Curriculum Diagram (beginning 2021)

## Courses

### MSTP 5017 - Hematologic & Lymphatic Systems (5 Credits)

This course focuses on the basic science and clinical concepts underlying the origin, development, normal function, and related hematologic and immunologic disease states. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

### MSTP 5022 - Nervous System (8 Credits)

A foundational, interdisciplinary approach to nervous system structure and function in health and disease will include neuroanatomy, pathophysiology, and pharmacology, among others. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

### MSTP 5025 - Endocrine & Metabolic Systems (7 Credits)

Biochemistry, pathology, physiology, immunology, and pharmacology are combined with the clinical approach to diagnosis and treatment of disorders of the endocrine system. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.



**MSTP 7645 - MSTP Seminar (1.5 Credits)**

Designed to expose MSTP and physician scientist students to research programs and opportunities in biomedical sciences at the CU Anschutz Medical campus and selected departments of the CU Boulder campus. Previously offered as IDPT 7645.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**MSTP 7652 - MSTP Advanced Topics (1-5 Credits)**

This course is designed for students in the MSTP and consists of in-depth small group (1-7 students) sessions that provide in-depth didactic and/or paper readings on subjects related to research rotations or thesis projects. Prereq: IDPT 7811, 7812, 7813, 7814, 7815 (BIOM Sci core courses); consent of Instructor. Previously offered as IDPT 7652

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**MSTP 7655 - Thesis Years - Foundations of Doctoring (1-5 Credits)**

This course intended for MD or MD-PhD students who have successfully completed all coursework for Phases I and II of SOM curriculum, are on leave of absence from SOM and wish to maintain clinical exposure and training during the leave. Prereq: All Phase I and II SOM courses. Previously offered as IDPT 7655

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**MSTP 7755 - MSTP Clinical Capstone (1 Credit)**

This 5-day clinical immersion course designed to reacquaint MSTP students with clinical training. Didactics and discussions focus on clinical skills and inpatient medicine teams. In practical activities, students follow 2-3 patients, present on rounds, call consultants, and formulate plans of care.

Previously offered as IDPT 7755

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**MSTP 7805 - Case Studies: Molecules to Medicine (1 Credit)**

This course is targeted for first year MSTP/Physician-Scientist students. Clinical cases will be presented/discussed by faculty and students to provide clinical context for basic science principles taught in the graduate core courses (IDPT 7811-7815). Prereq: IDPT 7811, 7812, 7813, 7814, 7815 (BIOM Sci Core Courses). Crosslisted: IDPT 5002. Previously offered as IDPT 7805.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

## Expectations of MST Program Students

The key expectation of each student admitted into the CU Anschutz Medical Campus Medical Scientist Training Program is that they take full advantage of all CU Anschutz resources and couple that with personal responsibility to achieve optimal success. During the first two years of combined medical and graduate school training, there are clear and tangible academic and research milestones every MST Program student must meet. In the first two years, it is expected that students will obtain passing grades in their coursework, successfully complete two research rotations, and pass the MSTP Graduate Preliminary exam and USMLE Step I exam. In the third year, students should begin thesis research and successfully pass the Comprehensive Exam. During this year, students will organize the National M.D./Ph.D. Student Conference. In the subsequent years of thesis research, the milestones become less clear and success relies on a student's own self-motivation, intellectual drive and hard work. Graduate school is not a job – it is training for a challenging career; a student's success at this stage of training and in subsequent steps will depend on the student's own drive, initiative, and effort. The Thesis Advisor and Committee are in place to provide scientific and professional guidance and support. It is the student's responsibility to utilize his/her Thesis Advisor and Committee to lead a successful graduate experience and career.

Ultimately, the student determines their success!

## Expectations for Ph.D. Training

The MST Program has the following expectations for a student's thesis career,

1. A student should be self-motivated. Motivation should come from within and not be determined by the mentor or arbitrary deadlines.
2. A student should work the necessary hours in the lab to complete his/her experiments. Graduate school is not a five-day a week, 9-5 job. The effort that students put in will be reflected in their success and the timetable for their graduation.
3. A student should be intellectually engaged in their research project. The mentor often initially conceives the project. However, by the Comprehensive Exam, the student should be actively participating in experimental decisions and research directions. In subsequent years, the

student should take progressively more control in the execution and direction of their research. Conversely, a student may design his or her own project and have it critiqued and approved by the advisor.

4. A student must take initiative for his/her career and be accountable for successes and failures in research. If things are not working in the lab, the student should coordinate with the advisor to find a solution. The Thesis Advisor and Committee exist to help students, but students must be proactive.

## Expectations for Clinical Training

The MST Program has the following expectations for a student's clinical training.

1. A student should master taking a clinical history, performing a physical exam, and sharpening clinical skills.
2. A student should have working knowledge of all of the clinical data for the patients in his/her care and contribute to the differential diagnosis and management plan.
3. A student should maintain professional behavior at all times. Professionalism includes, but is not limited to, working as part of the team, contributing to all aspects of patient care, and becoming familiar with the current and relevant clinical literature.

## Expectations for Professionalism

**The Medical Scientist Training Program has the following general expectations for an MSTP student:**

1. A student must respond to emails from MSTP, the SOM, the Graduate School, Graduate Programs and mentor(s) in a timely manner (within 4 hrs if urgent and within 24 hrs if not urgent).
2. A student must notify the MSTP and SOM if they travel for any personal reason and expect to be away during class time; and notify MSTP and their PhD mentor if they travel during the research period.
3. Professional behavior is expected at all times. Self-reflection to assess whether the student is behaving in the most appropriate and professional manner will be expected.

Over the past decade, many medical and graduate school curricula have dealt with issues related to student professionalism. We expect that MST Program students will maintain the highest standards of professionalism throughout their training and career years. Failure to meet these expectations can lead to dismissal from MSTP.

What do we mean by the term "professionalism (<http://www.nbme.org/PDF/Publications/Professionalism-Conference-Report-AAMC-NBME.pdf>)"? We expect students to demonstrate:

- *honor and integrity*: being honest and answering questions truthfully
- *excellence and scholarship*: reading papers related to clinical situations while doing clerkships
- *respect*: across the board - of patients, other health care professionals, instructors, other students, and members of a research team
- *leadership*: mentoring those that can benefit from your knowledge and organizing a team or group with which you work; insight
- *accountability*: strong work ethic; timeliness; responding in a timely manner to e-mails sent by administration, advisors, instructors; commitment; dedication; legal/policy compliance
- *responsibility*: motivation; self-evaluation; independence; take the initiative to communicate regularly with faculty advisors, especially in matters related to research and progress within the graduate program
- *caring and compassion*: communication; sensitivity; tolerance; openness
- *altruism*: helping others who are busy; participation in student or school organizations

## General Information

### Welcome to the Medical Scientist Training Program

At the University of Colorado School of Medicine and Graduate School, the MST Program targets highly motivated students interested in a career in academic medicine. The successful student receives both the M.D. and Ph.D. degrees at the completion of the curriculum. During the first two years, the students take a combined medical and graduate school basic science curriculum designed to provide the scientific basis necessary both to biomedical research and medical practice. Students rotate through at least two research laboratories to obtain substantive research experience prior to the choice of a laboratory for thesis work. During the subsequent two to four years, the students enter a graduate program in one of the basic science departments fulfilling the requirements for the Ph.D., including successful defense of a dissertation and publication of at least two papers in peer reviewed journals. In the last portion of the program, the students return to the medical school curriculum to complete their clinical training.

### New Student Information

The successful applicant to the MST Program enters the University of Colorado with dual status as a medical and a graduate student. The School of Medicine (SOM) Admissions Office handles all of the necessary paperwork for admittance to the School of Medicine and plans an orientation week before the MSI fall semester; the SOM Orientation is REQUIRED. Throughout the summer, students will receive several communications regarding

Student Orientation Week. Please notify the School of Medicine of any postal or email address change to avoid a delay in receiving this important information.

The Graduate School Application Part is processed by the MST Program Administrator. Eligibility for admission to the Graduate School cannot be approved without the submission of the following:

- Official Transcript(s) from each College/University attended. Transcripts are not shared between the SOM and Graduate School
- Final Transcript from degree-granting institution documenting receipt of the undergraduate degree
- Tuition Classification for Colorado Residency. You will submit a form for both the SOM and Graduate School

MSTP will host a orientation prior to the SOM orientation to review MSTP specific information for the new students. There the newly matriculated students will meet with key faculty and MSTP Leadership. Representatives from the Medical and Graduate schools are present to outline requirements and answer any questions.

## Email Communications

All communication relating to MSTP, Graduate School, School of Medicine, Faculty, and Staff must be with a "@cuanschutz.edu" email address; personal accounts such as gmail or yahoo should not be used. Students on the Boulder campus during their thesis years may use the "@colorado.edu" as a secondary email address, but emails coming from Anschutz Medical Campus will be sent to their "@cuanschutz.edu" email first. A student must respond to emails from MSTP, the SOM, the Graduate School, Graduate Programs and mentor(s) in a timely manner (within 4 hrs if urgent and within 24 hrs if not urgent).

## Financial Support

Accepted students receive full funding, including a stipend (currently \$34,000/year, as of August 2021), tuition, health and dental insurance, and fees for the entire period of study. The MST Program provides the financial support during the students' medical school program years and the PI/thesis mentor and/or graduate program provides support during the students' thesis years. Continued support is contingent upon satisfactory academic, research, and professional performance by the student. *Deficient performance in any one of these areas can be grounds for dismissal from the MST Program or graduate program in which they are completing their PhD work, and result in termination of financial support (i.e., payment of tuition, fees and stipend) provided by the MST Program or by the PI/mentor.*

When a student enters a thesis lab, the thesis mentor assumes complete responsibility for the student's stipend, tuition, fees and associated research costs. The Program strongly encourages students to apply for fellowship support during the research years. The student returns to MST Program support upon defending a thesis and returning to medical school, unless other funds have been obtained.

**Students who transfer to The University of Colorado Boulder or National Jewish Health for their Ph.D. should check with their Ph.D. Program for details regarding their financial support.** These programs may vary slightly in their financial support and supporting medical insurance compared to what is provided on the Anschutz Medical Campus.

Qualification for financial aid may be affected for students assigned to the MSTP NIH T32, an F30 or F31 slots.

## Student Health Insurance

All students will receive health and dental insurance coverage. Students will be automatically signed up for the University Student Health Insurance Program when registered for a minimum of 5 credit hours, unless they have alternate health insurance in place and specifically waive the University plan. Before the fall and spring semesters, students will need to fill out a waiver form through the Office of Student Health Promotion (<http://www.ucdenver.edu/life/services/student-health/insurance/Pages/default.aspx>), and follow the office's deadlines. Students must notify the MST Program Office if they plan to waive the student insurance. For more information on the plan and what it covers, contact Student Health Services at (303) 724-7674 or by email at: [CUAnschutzStudentInsurance@cuanschutz.edu](mailto:CUAnschutzStudentInsurance@cuanschutz.edu). **As previously listed, coverage of medical insurance differs at CU Boulder and/or National Jewish Health.**

## Tuition Bills

The MST Program Administrator will pay tuition bills for each semester for students in their medical years. That tuition bill will reflect charges for the core courses for which students are pre-registered. It is the student's responsibility to notify the Administrator if a course has been added or dropped during the add/drop period and to return any refund checks from the Bursar's Office to the MST Program Office. Students must also inform the Administrator if they have financial aid or have submitted a waiver for medical and/or dental insurance.

## Establishing Colorado Residency

All out-of-state students are required to petition for In-State Tuition Classification within their first year. It takes one year to establish Colorado residency. This process is outlined in a handout entitled "How to Establish Domicile for Tuition Purposes" and found on the Office of the Registrar's website HERE (<https://www.cuanschutz.edu/registrar/residency/current-students/>). Students need to read this information carefully so that they understand the process. The MST Program will pay out-of-state tuition during the first year ONLY. Each student must begin to establish residency IMMEDIATELY upon his or her arrival in Colorado.

Ways to establish residency:

1. Register your automobile with the State of Colorado
2. Obtain a State of Colorado driver's license (even if you don't have a car)
3. Register to vote (even if you don't plan to vote)
4. Obtain a lease agreement or proof of home ownership with the student's name on the document

**The petition form can be found** [HERE](https://dm-unityform.prod.cu.edu/UnityForms/UnityForm.aspx?d1=AVIYKgyBpdvZVGfSEuPTC7ceJjtrnARF7sXuyveie5%2b0ltq6NQaNzd2Aa8vZ3xkeDfO%2b1xry5sxqfXEYFEMEjz6eWkWA3t2n7elabdKPLMfHbTQoZnAVI46aYhzi1BGrludaC93J9qVke83%2baWHVpjUQsoKiKj81w6KeXUgtLI569i9xB0xwMQFrm1uhB9G%2bJYMBpzGw7EV7PnrPc6otPHCCN0LtNrfyqgUbFmWUWcn4RowDvlZV%2bA0HFkGPIQ%3d%3d&_ga=2.57316202.1959570360.1601306411-2124303634.1550261011) (https://dm-unityform.prod.cu.edu/UnityForms/UnityForm.aspx?

d1=AVIYKgyBpdvZVGfSEuPTC7ceJjtrnARF7sXuyveie5%2b0ltq6NQaNzd2Aa8vZ3xkeDfO

%2b1xry5sxqfXEYFEMEjz6eWkWA3t2n7elabdKPLMfHbTQoZnAVI46aYhzi1BGrludaC93J9qVke83%2baWHVpjUQsoKiKj81w6KeXUgtLI569i9xB0xwMQFrm1uhB9G

%2bJYMBpzGw7EV7PnrPc6otPHCCN0LtNrfyqgUbFmWUWcn4RowDvlZV%2bA0HFkGPIQ%3d

%3d&\_ga=2.57316202.1959570360.1601306411-2124303634.1550261011).

**The deadline for submitting a complete residency petition for review is the first day of the term you are petitioning. Submit early if possible. One year after your driver's license was issued.**

**Any student failing to meet the residency deadline will be personally responsible for the difference between in-state and out-of-state tuition rates.**

Questions about residency should be directed to the Registrar's Office.

Office of the Registrar

University of Colorado | Anschutz Medical Campus Campus Box A-054, Education II North

13120 E. 19th Avenue, Room 3205

Aurora, CO 80045

Email: [TuitionClassification@CUAnschutz.edu](mailto:TuitionClassification@CUAnschutz.edu)

Voice: 303-724-8054

Fax: 303-724-8060

## Student Tutoring Assistance

The MST Program and the School of Medicine have tutoring services available. Any student having difficulties in their classes should contact the MST Program Office immediately. With approval from the Director or Associate Directors, the MST Program will assist with tutoring fees and will help pay for additional preparatory courses. Students are encouraged to seek help early, as course remediation can delay student progression through an already tight timetable.

## Publications and Acknowledgments

All student publications, including abstracts, journal articles and theses, should acknowledge the MST Program along with other university acknowledgments. Students supported on the MST Program training grant should acknowledge the grant number in all publications (MSTP T32 GM008497).

The MST Program Office has copies of all student theses. Students need to provide one bound copy of the final version of their thesis to the MST Program at the same time they turn it in to their Graduate Program. The MST Program will reimburse (students with itemized receipts) for the Program's copy.

## Annual M.D./Ph.D. National Student Conference

CU Anschutz MST Program students organize the Annual National MD/PhD Student Conference during their first laboratory year. A student transferring into the CU MSTP from either another MD/PhD or MST Program or from the SOM MSII year will consult with MSTP leadership to decide the optimal year to participate in organizing this conference. The MST Program covers registration and meeting costs for CU Anschutz MST Program students. However, once CU Anschutz students register for the Conference, they are required to attend, as expenses cannot be refunded. If an emergency occurs, it is important to notify the Administrator and Director or Associate Directors as soon as possible.

All incoming CU Anschutz MST Program students are expected to attend the conference. In addition, MST Program students must attend a minimum of two conferences. MSTP students in their thesis or clinical years are required to present an abstract (oral or poster) in order to attend. In the event of extenuating circumstances that may conflict with these requirements, MST Program students should discuss their situation with the Director or Associate Directors as soon as possible to obtain a formal exception to the requirements stated above.

Students who attend are expected to stay the entire length of the conference. If you need to leave early, this needs prior approval from the Director(s) and/or the Administrator.

## Vacations

Students may schedule one-week vacation during the summer. An optimal time for an MSI/II student to take the vacation is before or after the laboratory rotation and/or before re-entry into their academic year. Students need to discuss vacation plans with their rotation/laboratory mentor.

Students **MUST** let the MST Program know of their plans. MSI students receive a week-long winter break vacation after Clinical Interlude. Pre-clinical students also receive a one-week spring break vacation in March along with the Medical Students. Depending on the student's choice of spring elective, **the medical and graduate school schedules may not coincide with spring break**. It is the student's responsibility to check this in advance and make appropriate plans.

## Office Resources Available to MST Program Students

Books, Test Prep Materials and MST Program Student Theses (Available in the MSTP office) Color Printer (MST Program Office)

Mail Box in MST Program Office (Campus Box C296) Black and White Copier

## Mental Health Resources Available to MST Program Students

Campus Mental Health Services—

<http://www.ucdenver.edu/life/services/student-health/mental-wellness/Pages/default.aspx>

RAVE Campus Emergency Notification Service—

<http://www.ucdenver.edu/about/departments/UniversityPolice/EmergencyPreparedness/EmergencyNotificationSystem/Pages/UniversityEmergencyNotificationSystemRAVE.aspx> (<http://www.ucdenver.edu/about/departments/UniversityPolice/EmergencyPreparedness/EmergencyNotificationSystem/Pages/UniversityEmergencyNotificationSystemRAVE.aspx>)

CARE – Campus Assessment, Response & Evaluation Team (303) 315-7306;

[shareaconcern@ucdenver.edu](mailto:shareaconcern@ucdenver.edu) – <http://www.ucdenver.edu/life/services/CARE/Pages/default.aspx>

*Refer to the Graduate School Handbook for a full list of services.*

## MST Program Alumni

### Mailing List

University of Colorado MST Program graduates are required to provide a forwarding address, both email and postal, for future correspondence. Alumni will be added to a University of Colorado MSTP distribution list and will continue to receive newsletters and important announcements. Alumni will also be contacted during grant renewals for current positions and recent publications.

### Publications, Positions and Funding Support

NIH requires the MST Program to track publications and positions of current and past students, so graduates of the CU Anschutz Medical Campus MST Program must report recent publications and career progress. The University of Colorado MSTP website will soon have a PubMed link to all alumni publications. Similarly, funding records will also be requested in order to assess overall success as an investigator in academic medicine. **To aid in tracking, we require MSTPs to create a uniform ORCID identifier number and report this number to our office.**

## Leave of Absence Requests

Leave of Absence requests that occur during the first two years or the last two years of medical school and during the period between completion of USMLE Step 1 and committing to a PhD- degree-granting graduate program will require that the MSTP student meet with MSTP and SOM leadership to discuss this option. The student will be required to write a letter stating the reason for the request, a plan of action during the LOA, and a plan for return to MSTP and/or the SOM. A copy of this letter should be submitted to the SOM Associate Dean of Students and to the Dean of the Graduate School. The SOM Promotions Committee will review such requests and make final decisions.

If the Leave of Absence occurs during the thesis years, the MSTP student should confer with the MSTP Leadership, his/her PI/mentor and the student advisor of their graduate program (and likely the Program Director as well). Again, the student will be required to write a letter stating the reason for the request, a plan of action during the LOA, and a plan for return to MSTP and/or the thesis laboratory. A copy of this letter should be submitted to the SOM Associate Dean of Students, with the mentor and the graduate program making the final decision.

When students take a Leave of Absence, per University Policy, all financial support, including medical insurance coverage, will be suspended until the student returns to active MSTP, Graduate and/or SOM status. Some arrangements can be made for the student should insurance be necessary for them while on leave. This is determined on a case-by-case situation.

## Dismissal and Appeals

As noted in the “Expectations” section of this Student Handbook, there are clear professionalism behaviors and tangible academic and research milestones that every MST Program student must meet in order to remain in good standing as an MSTP student. The MST Program, directors and administrators, including SOM leadership will support students through any and all difficulties at any point during both their medical and graduate school years.



Grounds for dismissal from MSTP include: poor academic performance; subpar performance in the laboratory rotations; professionalism issues; failing the Preliminary Exam; failing the Comprehensive Exam; poor progress in their PhD Thesis work; or dismissal from their Graduate Program and Graduate School.

Students who the program feels are eligible for dismissal will be asked to meet with the Program Director, Associate Directors, and/or SOM Leadership at any point in the program to review their behavior, training progress, and commitment to the program. The student will be given a warning until the program feels the student has remedied their situation.

The MSTP Leadership will schedule regular meetings with the student, as they feel necessary, to continue to review the student's progress. The student can also schedule meetings with any of the Directors at any time during this period.

Dismissing a student from MSTP is done only after very careful review, by the MSTP Executive Committee, of the student's behavior, professionalism, academic and research training progress, and commitment to a career as a physician-scientist; the MSTP Executive Committee includes MSTP, SOM, and Graduate School leadership faculty. If the decision is to dismiss, by the majority of the MSTP Executive Committee, the student will be notified immediately following review. Finally, upon dismissal from MSTP, the student will no longer receive the financial support (tuition, fees, insurance, or stipend) provided by MSTP.

Dismissal from MSTP does not necessarily mean dismissal from Medical School, but such a result can occur. If dismissal from MSTP occurs, the student will need to submit a formal request in writing to the SOM Associate Dean of Students and the SOM Promotions Committee to continue in medical school. The request to continue as a medical student must be approved by either the SOM Associate Dean of Students and/or the SOM Promotions Committee. See SOM Policies and Procedures HERE (<http://www.ucdenver.edu/academics/colleges/medicalschoo/education/studentaffairs/studentresources/Documents/StudentHandbook.pdf>).

Below are the basis in which a MSTP student could be dismissed from the MST Program:

1. Failure to pass the preliminary exam.
2. The inability to match into a thesis lab due to professionalism issues or because the MSTP student has accumulated subpar performance in the previous rotations such that PIs are not willing to accept that student
3. Failure to pass the Comprehensive Examination. The student's Graduate Program can dismiss the student from that Program at that point. Dismissal from the Graduate Program results in dismissal from Graduate School and dismissal from MSTP.
4. Poor academic performance while in medical school and/or graduate school.

Below is the outline of the procedure for Appeal of MSTP Dismissal decisions during distinct periods of the MD/PhD training plan:

**During MSI or MSII** – If dismissal from MSTP occurs within the first two years of medical school, appeals must be submitted in writing to the SOM Associate Dean of Students, the SOM Promotions Committee, and the MSTP Director, stipulating the basis for the appeal.

**During Graduate School/Thesis Years** – If dismissal from MSTP occurs at any point after the MSTP student has committed to a graduate program and/or is on a Leave of Absence from the SOM, appeals regarding the dismissal from their graduate program (and thus from the Graduate School) must be submitted in writing to the Dean of the Graduate School stipulating the basis for the appeal; with copies to the Graduate Program Director, the MSTP Director, and the SOM Associate Dean of Students,

**During MSIII or MSIV** – If dismissal from MSTP occurs during the last two years of medical school, appeals regarding the dismissal from MSTP at this point in the training must be submitted in writing to the Associate Dean of Students, the SOM Promotions Committee and the MSTP Director, stipulating the basis for the appeal.

For a complete listing of all MSTP affiliated faculty across CU Anschutz, CU Boulder, and National Jewish Health campuses, please click here (<https://medschool.cuanschutz.edu/mstp/people/faculty/>).

## Program Learning Outcomes:

MSTP does not confer either the MD or PhD degree, but rather we recruit students who seek to complete both degrees. We have a highly integrated curriculum combining medical and graduate courses in the first year, complete of the Graduate Preliminary Exam at the end of the first year, medical courses in the second year, and the students then enter a degree-granting graduate program. Once they complete all of the requirements for the PhD, they return to medical school to complete the last two years of clinical training.

The MST Program trains combined degree students to become proficient and successful clinicians and investigators who are able to:

- Demonstrate advanced knowledge of central concepts in the biomedical sciences
- Understand the current concepts in medicine and their chosen PhD field
- Read and critically evaluate the scientific literature
- Communicate effectively through oral presentations at seminars, conferences, and venues
- Write a competitive application for research funding
- Develop ancillary skills to obtain positions in a wide range of biomedical venues
- Become innovators and leaders in their respective fields and careers

## Contact Us

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### Christopher Sienza

Program Manager  
Christopher.Sienza@CUAnschutz.edu (Christopher.Sienza@cuanschutz.edu)  
303-724-4600

### Medical Scientist Training Program

CU Anschutz Fitzsimons Building  
13001 East 17th Place  
Aurora, CO 80045  
Phone: 303-724-4600  
Email: mstp@CUAnschutz.edu

## Microbiology (PhD)

### Overview

The Graduate Program in Microbiology at the University of Colorado Anschutz Medical Campus is a Ph.D. program that prepares students to contribute to an understanding of microbial species, including archaea, bacteria, fungi, helminths, protozoa, and viruses, and their positive and negative roles in the health of humans. Despite progress and breakthroughs in public health, vaccination, therapeutics, and antibiotics, there are many ongoing and emerging challenges in the prevention and treatment of infectious disease. As we continue to learn about the complex populations of organisms that surround us and colonize us, rigorous training of future young investigators in microbiology will continue to be essential to human health. The principle aim of the Graduate Program in Microbiology is to help produce the next generation of microbiologists to address unsolved and arising questions in basic and translational microbiology research.

The Graduate Program in Microbiology provides advanced training and education for students with the desire and ability to thrive in a stimulating, research-oriented graduate program leading to careers in science in the academic, governmental, or private sectors. Close individual attention is given by the faculty to the needs and training of each graduate student. The Microbiology Program faculty includes members of the Departments of Immunology and Microbiology, Medicine, Neurology, Pediatrics, and Biochemistry and Molecular Genetics. Faculty research interests include molecular mechanisms of bacterial and viral pathogenesis, the molecular biology of microbial gene expression, pathogen-host interactions, innate and adaptive immune responses to infection, mechanisms of immune evasion, the role of the microbiome in health and disease, structural biology, and development of novel therapeutics and vaccines.

## Admissions Requirements

### Admissions Philosophy

The Graduate Program in Microbiology seeks students with the intellectual aptitude, independence, and motivation to pursue scientific research. Students are considered and selected on the basis of past academic performance, previous laboratory research experience, recommendations, and individual interviews. While previous experience in Microbiology coursework and research is helpful, the Graduate Program in Microbiology welcomes applicants with varied backgrounds. Students most likely to succeed have traditionally been those with intellectual achievement and creativity, first-hand understanding of laboratory research, and a strong personal desire and motivation to progress in their scientific training.

There are 3 ways to enter the Microbiology Program:

- Apply directly to the Microbiology Graduate Program.
- Apply to the Biomedical Sciences Umbrella Program and join the Microbiology Graduate Program after your 1st year.
- Those interested in pursuing an MD/PhD with research interests in Microbiology may apply to the Medical Scientist Training Program and complete their PhD portion through Microbiology. Note: the MSTP follows a separate application process with different deadlines.

The Graduate Program in Microbiology also works closely with the Immunology Program and the Molecular Biology graduate programs, and several labs have joint appointments which can allow for a student to rotate and/or complete thesis work in a Microbiology lab.

### Entrance Requirements

**Undergraduate Studies** | The Graduate Program in Microbiology requires a baccalaureate degree (BS or BA) with a 3.0 (out of 4.0) Grade Point Average (GPA), although exceptions can be considered. Admissions Committee reviews completed coursework to determine if each applicant

has sufficient background to pursue our doctoral degree. Specific courses are not required, but coursework in the following subjects is recommended and can enhance an application: Microbiology, Immunology, Virology, Organic Chemistry, Biology, Biochemistry, Cell Biology, Genetics, Molecular Biology, Molecular Genetics, and Physiology.

**Research Experience** | Research experience, particularly experimental, hypothesis-driven research experience, is highly recommended. This type of experience is extremely valuable in providing insight to both the Admissions Committee and the candidate as to their commitment to the rigors and rewards of scientific endeavor.

**Letters of Recommendation** | Three (3) letters of recommendation are required for an application to be considered complete, and thus be reviewed by the Microbiology Admissions Committee. These letters are important and are a critical element for the Admissions Committee's evaluation of applications. Thus, when possible, applicants should select faculty research mentors that can discuss academic performance, research experience, and the likelihood of the applicant's future success as a scientist.

#### DEADLINE FOR APPLICATIONS IS DECEMBER 1<sup>st</sup>.

Applications will open September 1, and all application and supplemental materials are due no later than December 1. Applications received after December 1 may not be considered.

To apply for admission applicants must submit the following:

- Online Graduate School application
- A \$50.00 domestic and \$75.00 international non-refundable application fee.
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come directly from the issuing institution.

Electronic Transcripts should be sent to [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

OR

Mail a physical copy to:

University of Colorado Denver  
Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364

- Three (3) letters of recommendation. Letters should be from individuals such as college professors or faculty mentors who are familiar with your academic and/or laboratory achievements. Such letters should be submitted electronically through the on-line application.
- GRE scores are no longer required for admission.
- International Applicants only: Students whose native language is not English or who have completed their studies at an institution where English was not the language of instruction, must demonstrate English language proficiency by submitting scores of the Test of English as a Foreign Language (TOEFL) or its equivalent. **Visit International Admissions for more information.**

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
MICB 7650	Research in Microbiology <sup>001</sup>	1-10
MICB 7650	Research in Microbiology <sup>001</sup>	1-10
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science (Topic A) Microbiology in Biomedical Research	1-6
Choose one of the following:		
BMSC 7810	Core Topics in Biomedical Science (Topic B) The Microbiome in Health and Medicine	1-6
BMSC 7810	Core Topics in Biomedical Science (Topic B) Gene Regulation and RNA Biology in Disease	1-6
BMSC 7810	Core Topics in Biomedical Science (Topic B) Principles of Cancer Biology	1-6
<b>Hours</b>		<b>12-50</b>
<b>Spring</b>		
MICB 7650	Research in Microbiology <sup>001</sup>	1-10
MICB 7703	Molecular Mechanisms of Bacterial Disease	3
MICB 7701	Molecular Virology and Pathogenesis	3
<b>Hours</b>		<b>7-16</b>
<b>Summer</b>		
MICB 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>20-76</b>

### Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
MICB 7650	Research in Microbiology <sup>0V3</sup>	1-10
IMMU 7607	Science as a Profession	1
<b>Hours</b>		<b>2-11</b>
<b>Spring</b>		
MICB 7650	Research in Microbiology <sup>0V3</sup>	1-10
IMMU 7605	Workshop in Scientific Writing	1
<b>Hours</b>		<b>2-11</b>
<b>Summer</b>		
IMMU 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>5-32</b>

## Learning Objectives

The PhD program in Microbiology trains graduate students to become proficient and successful investigators who are able to:

- Demonstrate a basic knowledge of central concepts in the biomedical sciences.
- Understand current concepts in microbiology.
- Read and critically evaluate the scientific literature.

- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Present research results in peer-reviewed publications and in a dissertation.
- Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
- Write a competitive application for research funding.
- Develop ancillary skills, where necessary, to obtain positions outside of academic research.

## Courses

**BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)**  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.

**BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**  
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.

**IMMU 7605 - Workshop in Scientific Writing (1 Credit)**  
This workshop will consist of one session weekly for students to be critiqued on writing assignments designed to provide basic training in writing grant proposals and manuscripts.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**IMMU 7607 - Science as a Profession (1 Credit)**  
This course discusses ethical issues, conflicts of interest, and regulations for working with humans or animals. It also includes instruction on writing papers and grants, giving effective presentations and advice on finding jobs in academia and industry.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**MICB 7650 - Research in Microbiology (1-10 Credits)**  
Research work in microbiology. Prereq: Consent of instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**MICB 7701 - Molecular Virology and Pathogenesis (3 Credits)**  
Topics in this course include viral structure and genome organization, replication and expression of viral genomes, mechanism of action of tumor viruses, molecular aspects of virus-host cell interactions, animal models of infectious diseases and pathogenesis of human viruses.  
Prereq: MICB 7706, MICB 7705 are desirable but not required. Restriction: Permission of Instructor.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**MICB 7703 - Molecular Mechanisms of Bacterial Disease (3 Credits)**  
The course focuses on molecular processes that bacteria utilize to cause disease in humans. The course content will use specific examples from pathogenic bacteria to illustrate common virulence mechanisms utilized to initiate, maintain and survive interactions with host cells. Prereq: Recommended Fundamentals of Microbiology Restrictions: Permission of the instructor.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**MICB 8990 - Doctoral Thesis (1-10 Credits)**  
Doctoral thesis work in microbiology. Prereq: Consent of the instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Program Calendar

August – Department of Immunology & Microbiology Scientific Conference & Retreat

October – Immunology Program & Microbiology Program Student (only) Retreat

October – MPID T-32 Mini-symposium

Weekly – Research in Progress Seminar with the Immunology Program

Weekly- Infectious Disease Journal Club

Weekly – Speaker Series with Immunology Program

Twice per year – Student Invited Speaker Seminar and meetings

## Contact Us

**Breck A. Duerkop, PhD**  
Assistant Professor  
Program Co-Director  
Breck.Duerkop@cuanschutz.edu

**Microbiology Graduate Program**  
Mail Stop C290  
13001 E. 17<sup>th</sup> Place, Room 1327  
Aurora, CO 80045

# Molecular Biology (PhD)

## Overview

The Molecular Biology Program is dedicated to providing rigorous training to its students in a supportive environment. Molecular Biology faculty are members of many different departments and are applying the techniques of molecular biology to answer questions in diverse areas. Molecular biology, the science of how living things work at the molecular level, has led the recent revolution in our understanding of human disease and gave birth to the biotechnology industry. In almost all aspects of modern biomedical research, a professional knowledge of molecular biology is essential. Our training program is designed to equip students for careers at the cutting edge of biology.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application
  - Personal Statement
  - Research Experience explanation (more in-depth than what is provided in the resume requirement)
  - Resume: The applicant's current resume or curriculum vitae, including professional work/practice since graduating with a bachelor's degree (or equivalent).
  - Diversity, Equity and Inclusion Statement
  - Three recommendations: to be completed by people who know your professional, academic and/or personal achievements or qualities well. As such, references must be from professional contacts, such as employers, supervisors, former faculty, preceptors, or professional colleagues.
- Official Transcripts from all post-secondary colleges and/or universities attended by the applicant.
- Application Fee: A nonrefundable application fee of \$50.00 (U.S. dollars – Domestic Applicants). Checks or money orders should be made out to the University of Colorado.
- Interview: If selected, candidates will be contacted to attend a recruitment weekend[HS2], including interviewing with current MOLB Faculty and Students.
- Transcripts: Official transcripts from all post-secondary colleges and/or universities should be sent directly to:

University of Colorado Denver Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

OR Electronic Transcripts should be sent  
to: graduateadmissions@ucdenver.edu (preferred)

**International students** must meet ALL the requirements listed above along with those required by the Office of International Affairs. The application fee for international students is \$75.00.

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science <sup>one</sup> section from A & one section from B	1-6
MOLB 7650	Research in Molecular Biology <sup>sections 001 &amp; 002</sup>	1-10
<b>Hours</b>		<b>8-22</b>
<b>Spring</b>		
MOLB 7800	Advanced Topics in Molecular Biology	3-4
MOLB 7650	Research in Molecular Biology <sup>section 001</sup>	1-10
Elective of student's choosing		
<b>Hours</b>		<b>4-14</b>
<b>Summer</b>		
MOLB 8990 or MOLB 7650	Doctoral Thesis in Molecular Biology or Research in Molecular Biology	1
<b>Hours</b>		<b>1</b>
<b>Total Hours</b>		<b>13-37</b>

### Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
MOLB 7661	Molecular Biology Seminar	1
MOLB 7650	Research in Molecular Biology <sup>Section 0V3</sup>	1-10
MOLB 7950	Informatics and Statistics for Molecular Biology	4
<b>Hours</b>		<b>6-15</b>
<b>Spring</b>		
MOLB 7801	Rigor and Reproducibility in Biomedical Research	1
MOLB 7661	Molecular Biology Seminar	1
MOLB 7650	Research in Molecular Biology <sup>Section 0V3</sup>	1-10
Elective of student's choosing		
<b>Hours</b>		<b>3-12</b>
<b>Summer</b>		
MOLB 8990	Doctoral Thesis in Molecular Biology	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>10-37</b>

### Third Year through PhD Completion

Course	Title	Hours
<b>Fall</b>		
MOLB 8990	Doctoral Thesis in Molecular Biology	5
<b>Hours</b>		<b>5</b>
<b>Spring</b>		
MOLB 8990	Doctoral Thesis in Molecular Biology	5
<b>Hours</b>		<b>5</b>



Summer		
MOLB 8990	Doctoral Thesis in Molecular Biology	1
Hours		1
Total Hours		11

## Learning Objectives

The MOLB Program has defined five objectives that convey our approach to research and professional training.

**Objective 1** is to provide broad training in foundational molecular and cellular biology with focused research opportunities in diverse disciplines (e.g., bioinformatics, cell biology, cancer biology, developmental biology, epigenetics, immunology, microbiology, RNA biology, and structural biology). Our broad interdisciplinary training is key to the success of our trainees and a defining feature of MOLB relative to other AMC training programs. The scientific breadth of our faculty exposes our trainees to many different techniques and provides opportunities for students to combine different approaches to answer their own scientific questions. We cultivate a collegial environment across the program, encouraging intellectual exchange and collaboration between labs from many departments and measure our success by the number and quality of research publications produced by our trainees and the number of external grants that they are awarded based on their research.

**Objective 2** is to provide student-oriented and well-balanced training that emphasizes development of creative and independent thinking, strong communication skills, and professional responsible conduct. A key to MOLB training is its focus on developing professional skills including teamwork, science communication, project management, and leadership. The MOLB Program incorporates many technical, operational, and professional elements to provide balanced training for our students.

**Objective 3** is to develop and apply the newest techniques that drive advances in science. As the late Sydney Brenner articulated, *“Progress in science depends on new techniques, new discoveries, and new ideas, probably in that order.”* A primary objective of the MOLB Program is to position our graduates to lead the forefront of scientific technology deployment and development. We develop scientists who are well-versed in existing scientific techniques and capable of developing their own experimental approaches to answer new questions. We combine rigorous “wet” and “dry” laboratory training, intensive discussion of current literature, workshops, and mini-courses that focus on emerging techniques for molecular and cell biology research, and we measure our success by our trainees’ performance in preliminary and comprehensive examinations, and laboratory research.

**Objective 4** is to create and sustain an inclusive and diverse research training environment. We value diversity in our program and the scientific community, and developed several approaches to increase the cultural, racial, and social diversity in the MOLB Program. Some of these include MOLB-specific recruitment and retention strategies and diversity training for our faculty and students.

**Objective 5** is to promote the career advancement of our trainees and introduce them to a broad range of career choices. The MOLB program provides skills and opportunities for experiential learning needed to succeed in many science-related careers, including academic research, consulting, teaching, government and public policy, technology transfer and patent law, science writing, and science communication, and measure our success by the diversity of science-related careers that our trainees pursue.

## Course Descriptions

- BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)**  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 6.  
Typically Offered: Fall.
- BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**  
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.  
AMC-PHD PhD Students only  
Typically Offered: Fall.
- MOLB 7650 - Research in Molecular Biology (1-10 Credits)**  
Research work in molecular biology. Prereq: Consent of the instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.
- MOLB 7661 - Molecular Biology Seminar (1 Credit)**  
Seminar series provides a forum for the presentation of scientific experiments and information in molecular biology by faculty, postdoctoral fellows, graduate students and invited outside guest speakers.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring.
- MOLB 7800 - Advanced Topics in Molecular Biology (3-4 Credits)**  
Course instructs graduate students how to critically evaluate scientific literature. Course in 4 blocks; topics include nucleic acid, chromatin structure, DNA replication, RNA transcription, RNA processing, cell cycle control, genetics of model organisms. Papers chosen by instructors, presentations by students. Prereq: IDPT 7811, 7812, 7813, 7814, 7815. Restriction: By Permission of instructor. Course offered in 4 blocks of 1 hour of credit each.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 4.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.
- MOLB 7801 - Rigor and Reproducibility in Biomedical Research (1 Credit)**  
Course will integrate the concepts of rigor, repeatability and reproducibility by combining both wet and dry lab components focused on teaching these concepts and laboratory skills. We will seek to make these concepts routine considerations during the design and execution of any type of experiment. Instructor consent required.  
Grading Basis: Pass/Fail Only  
Repeatable. Max Credits: 3.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring.

**MOLB 7950 - Informatics and Statistics for Molecular Biology (4 Credits)**

This course covers the design and analysis of common molecular biology experiments with thorough coverage of statistical and informatic approaches to data analysis. The course begins with a "boot camp" that covers use of shell programming, R/R Studio, and Python scripting in bioinformatics. Pre-Req: MOLB-PhD or CSDV-PhD students only  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**MOLB 8990 - Doctoral Thesis in Molecular Biology (1-10 Credits)**

Doctoral thesis work in molecular biology. Prereq: Consent of Instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Rytis Prekeris, Ph.D.**

Program Director  
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**Sabrena Heilman, M.Ed., MBA**

Program Administrator  
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303.724.3245

University of Colorado Anschutz Medical Campus  
12801 E 17th Avenue  
Mail Stop 8116  
Aurora, CO 80045

## Neuroscience (PhD)

### Overview

The Neuroscience Training Program at the CU School of Medicine provides multidisciplinary PhD training covering the breadth of neurobiology. Hands-on research training in state-of-the-art laboratories and formal coursework in cellular and molecular neurobiology, systems, neural development, neuropharmacology, and biochemistry, propels students to competitive careers in the sciences.

## Admissions Requirements

**The Neuroscience application deadline is December 1.**

PRIORITY DEADLINE FOR INTERNATIONAL APPLICANTS IS NOVEMBER 1.

Applications received by December 1 will be given first consideration for admission to the Fall Semester of the following year, but applications received subsequently may also be considered.

An application for admission must include the following:

- Graduate School on-line application (Includes resume, statement of purpose and research statement)
- A \$50 (domestic) or \$75 (international) non-refundable application fee. An application will not be processed without payment. Fee waivers are available for qualified applicants.
- Three (3) letters of recommendation
- TOEFL scores and financial support verification (international students)
- One (1) unofficial or official transcript of all academic work completed to date. An official transcript will be required following acceptance to matriculate into our program and must come from the issuing institution directly and sent either electronically or mailed to:

Electronic Transcript(s): [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

Mailed Transcript(s):

University of Colorado Denver  
Graduate Admissions  
Campus Box 163  
PO Box 173364  
Denver, CO 80217

**Exams** | The GRE is not required. International students must take the Test of English as a Foreign Language (TOEFL).

**Undergraduate Coursework** | An undergraduate degree or its equivalent is required. A baccalaureate degree in a biological science, chemistry, physics or engineering is recommended.

**GPA** | There is no absolute requirement for grade point average above that required by the graduate school, but successful applicants will generally have GPAs above 3.2 (A=4.0).

**Research Experience** | Research experience is strongly recommended.

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
NRSC 7501	Introduction to Neuroscience	1
NRSC 7600	Cellular & Molecular Biology	3
NRSC 7650	Research in Neuroscience	1-10
NRSC 7662	Survey of Neuroscience	1
<b>Hours</b>		<b>12-21</b>
<b>Spring</b>		
NRSC 7610	Fundamentals of Neurobiology	3
NRSC 7615	Developmental Neurobiology	3
NRSC 7650	Research in Neuroscience	1-10
NRSC 7661	Grant Proposal Writing Workshop	1

NRSC 7662	Survey of Neuroscience	1
<b>Hours</b>		<b>9-18</b>
<b>Total Hours</b>		<b>21-39</b>

Course	Title	Hours
<b>First Year</b>		
<b>Summer</b>		
NRSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

## Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
PHCL 7605	Responsible Conduct of Research	1
NRSC 7650	Research in Neuroscience	1-10
BIOS 6606	Statistics for the Basic Sciences	3
<b>Hours</b>		<b>5-14</b>

<b>Spring</b>		
NRSC 7650	Research in Neuroscience	1-10
Choose Between:		
NRSC 7612	Nervous System Modeling with NEURON	1
ELEC 5375	Engineering Neuroscience	3
BIOE 5053	Optics & Microscopy in Biomedical Research	3
NRSC 7657	MATLAB for Neuroscientists	2
MOLB 7950	Informatics and Statistics for Molecular Biology	4
<b>Hours</b>		<b>14-23</b>
<b>Total Hours</b>		<b>19-37</b>

Course	Title	Hours
<b>Second Year</b>		
<b>Summer</b>		
NRSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

## Third Year & Beyond

Code	Title	Hours
NRSC 8990	Doctoral Thesis	1-10

## Learning Objectives

**Graduate education in general** | Doctoral education is the foundation of future scholarship and the “engine” of the research enterprise. It prepares future faculty and leaders in the academy and other areas of industry and society.

**Program/Student Learning Outcomes** | The PhD program in Neuroscience trains graduate students to become proficient and successful investigators who are able to:

- Demonstrate a basic knowledge of central concepts in the biomedical sciences.

- Understand the current concepts in Neuroscience.
- Read and critically evaluate the scientific literature.
- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Present research results in peer-reviewed publications and in a dissertation.
- Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
- Write a competitive application for research funding.
- Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

## Courses

**BIOE 5053 - Optics & Microscopy in Biomedical Research (3 Credits)**  
Graduate overview of optical imaging, ranging from classical microscopy to advanced non-linear techniques and includes theory, technology and applications in biomedical sciences. This will prepare students for developing and applying state-of-the-art optical imaging in their research. Cross-listed with BIOE 4053. Prereq: Grad standing or permission from the instructor. Max Hours: 3 Credits.

Grading Basis: Letter Grade

**BIOS 6606 - Statistics for the Basic Sciences (3 Credits)**  
This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions: Enrollment in UCD-AMC graduate program or permission of the instructor. Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)**  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall.

**ELEC 5375 - Engineering Neuroscience (3 Credits)**

In this course, mathematical models and data processing strategies will be introduced as well as other cutting-edge research techniques to help students understand how these techniques can be applied to solve modern neuroscience problems. Prereq: ELEC 3316 or graduate standing. Cross-listed with ELEC 4735 and NRSC 7674 (Anschutz Medical Campus course). Max Hours: 3 Credits.

Grading Basis: Letter Grade

Prereq: ELEC 3316 or Graduate Standing

**MOLB 7950 - Informatics and Statistics for Molecular Biology (4 Credits)**

This course covers the design and analysis of common molecular biology experiments with thorough coverage of statistical and informatic approaches to data analysis. The course begins with a "boot camp" that covers use of shell programming, R/R Studio, and Python scripting in bioinformatics. Pre-Req: MOLB-PhD or CSDV-PhD students only  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**NRSC 7501 - Introduction to Neuroscience (1 Credit)**

Introduction to study of the nervous system from the level of the brain to an understanding of how neurons are specialized for communication and information processing. This course is a prerequisite for NRSC 7600 series courses.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**NRSC 7600 - Cellular & Molecular Biology (3 Credits)**

A comprehensive, in-depth, discussion-based course intended for candidates for the Ph.D. in Neuroscience. Topics include ion channel structure and function, ionic basis of the resting and action potential, and the biochemistry and physiology of direct and synaptic transmission.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**NRSC 7650 - Research in Neuroscience (1-10 Credits)**

Research work in neuroscience. Prereq: Consent of instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

**NRSC 7662 - Survey of Neuroscience (1 Credit)**

Designed to expose first year graduate students to current topics in neuroscience.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring.

**NRSC 7610 - Fundamentals of Neurobiology (3 Credits)**

This course will provide basic knowledge on the structure and function of the nervous system. The lectures will be supplemented by discussion of primary research literature in neurobiology. Prereq: NRSC 7600 or equivalent at the discretion of the instructors.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 5.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**NRSC 7615 - Developmental Neurobiology (3 Credits)**

This course will cover fundamental principles regarding development of the nervous system. The format of the course will consist of lecture plus reading of primary literature. Prereq: IDPT 5004, NRSC 7600 & NRSC 7610.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**NRSC 7661 - Grant Proposal Writing Workshop (1 Credit)**

Course is practical workshop in grant-writing culminating in a mock review panel including course participants. Students will examine various proposal types/formats, then write their own proposal in the format of NRSA fellowship application. Restriction: Students with adequate neuroscience background. Prereq: NRSC 7610.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**NRSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in neuroscience. Prereq: Consent of instructor.  
Grading Basis: Letter Grade with IP  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

**NRSC 7612 - Nervous System Modeling with NEURON (1 Credit)**

The objective of this course is to introduce students to biophysically accurate modeling of single neurons and neuronal networks with NEURON simulation environment. Students will implement NEURON in a project of their choice, possibly related to their primary 'wet' research.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**NRSC 7657 - MATLAB for Neuroscientists (2 Credits)**

MATLAB is an accessible programming environment that is widely used by scientists and engineers and offers powerful tools for data acquisition and data analysis. Students will develop their own MATLAB programs that are relevant to their particular line of research.  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**PHCL 7605 - Responsible Conduct of Research (1 Credit)**

The Department of Pharmacology in the University of Colorado School of Medicine organizes and offers an interactive course during the fall semester entitled "Responsible Conduct of Research". The course is designed to inform students, trainees and faculty to the NIH requirements for ethical and responsible research.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Abigail Person, PhD**

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# Pharmacology (PhD)

## Overview

The Pharmacology Training Program has a long and well-established history of training Ph.D. students in the biomedical sciences. The NIH funded Pharmacology pre-doctoral Training Grant (T32), currently in its 43<sup>rd</sup> year, is one of the longest standing grants of its type in existence. Students enter the Training Program either directly, via the Biomedical Sciences (umbrella) Program, or the Medical Scientist Training Program (MSTP). Currently, there are ~35 students and ~55 training faculty associated with the Program.

The Pharmacology Training Program is truly both interdisciplinary and interdepartmental with faculty members having primary appointments in Anesthesiology, Biochemistry & Molecular Genetics, Immunology, Medicine, Neurology, Pathology, Pediatrics, Pharmaceutical Sciences, Pharmacology, and Physiology & Biophysics. Training Program faculty are internationally renowned in the areas of neuroscience, cancer biology, cardiovascular biology, signal transduction, structural biology, and bioinformatics.

One of the defining features of the Pharmacology Program training faculty is the highly collaborative and interdisciplinary approach to their work. Laboratories frequently use multiple parallel approaches including molecular biology, structural biology, genomics, and informatics and cutting-edge methodologies employing high powered imaging techniques including optogenetics. Another defining feature of the Program is the focus on personalized medicine and translating fundamental benchtop discoveries to clinical practice.

Students admitted to the Pharmacology Program are fully funded. In addition to the current stipend (\$34k/yr subject to update), trainee support includes coverage of tuition & fees, health insurance, access to mental health resources, and free public transportation.

During their 1<sup>st</sup> year, Program students complete a set of core courses common to all biomedical science programs as well as core courses central to the discipline of Pharmacology. Students also complete 3 ten-week research rotations with Program faculty. The year wraps up with the Program's Preliminary Exam and the subsequent transfer of the student into their chosen thesis lab. A substantial proportion of our students are successful in obtaining external funding from entities such as the NIH, AHA, HHMI, NSF, etc. The average time to completion of a Ph.D. is 5.4 years. Please visit our Program's website to get a better feel for our current cohort of students and to see the progress of our recent alumni.

The University of Colorado Anschutz Medical Campus is the largest academic medical center in the region. Our graduate students are integral members of a community whose collective goal is to push the boundaries of science and healthcare, to improve lives, and to make a difference. At CU Anschutz, we are not training our graduate students to fit a certain academic mold. We are training thought-leaders who are equipped with the skills and knowledge to make an impact in all aspects of science.

## Admissions Requirements

To apply for admission applicants must submit the following:

- Online Graduate School application.
- A \$50.00 domestic and \$75.00 international non-refundable application fee [credit card (on-line only), check, or money order]. No application will be processed unless this fee is paid.

- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come from the issuing institution directly to the University of Colorado Denver Graduate Admissions.

Electronic Transcripts should be sent to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

If sending a physical transcript, please mail to:

Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364

- Four (4) letters of recommendation.
- TOEFL or IELTS scores and financial support verification (international students only).

## Degree Requirements

### First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science	1-6
BMSC 7810	Core Topics in Biomedical Science	1-6
PHCL 7600	Frontiers in Pharmacology	1
PHCL 7605	Responsible Conduct of Research	1
PHCL 7650	Research in Pharmacology <sup>Section 001</sup>	1-5
PHCL 7650	Research in Pharmacology <sup>Section 002</sup>	1-5
<b>Hours</b>		<b>12-30</b>
<b>Spring</b>		
PHCL 7606	Receptors and Cell Signaling	3
PHCL 7620	Principles of Pharmacology <sup>Section 001</sup>	6
PHCL 7650	Research in Pharmacology <sup>Section 003</sup>	1-5
<b>Hours</b>		<b>10-14</b>
<b>Summer</b>		
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>23-54</b>

### Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
BIOS 6606	Statistics for the Basic Sciences	3
PHCL 7613	Pharmacology Journal Club <sup>Section 001</sup>	1
PHCL 7615	Grant Proposals in Pharmacology <sup>Section 001</sup>	1
<b>Elective</b>		
<b>Hours</b>		<b>5</b>
<b>Spring</b>		
PHCL 7613	Pharmacology Journal Club <sup>Section 001</sup>	1



PHCL 7615	Grant Proposals in Pharmacology <sup>Section 001</sup>	1
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
Elective		
<b>Hours</b>		<b>3-12</b>
<b>Summer</b>		
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>9-27</b>

## Third Year

Course	Title	Hours
<b>Year 3</b>		
<b>Fall</b>		
PHCL 7613	Pharmacology Journal Club <sup>Section 001</sup>	1
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>2-11</b>
<b>Spring</b>		
PHCL 7613	Pharmacology Journal Club <sup>Section 001</sup>	1
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>2-11</b>
<b>Summer</b>		
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>5-32</b>

## Fourth Year & Beyond

Course	Title	Hours
<b>Year 4</b>		
<b>Fall</b>		
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>1-10</b>
<b>Spring</b>		
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>1-10</b>
<b>Summer</b>		
PHCL 8990	Doctoral Thesis <sup>Section 0V1</sup>	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>3-30</b>

## Learning Objectives

**1A. Graduate education in general** | Doctoral education is the foundation of future scholarship and the primary “engine” driving the research enterprise. It prepares future faculty and leaders in the academy as well as in many other areas of industry, government, and society in general.

**1B. Pharmacology program in specific** | The excellence of our Graduate Program in Pharmacology is best illustrated by the fact that our NIH-sponsored pre-doctoral T32 Training Grant has been continuously funded since 1978, making it one of the longest standing pharmacology training programs of this type.

The philosophy of our graduate program is to emphasize state-of-the-art research approaches at all stages; and that begins with the recruitment phase. We identify candidates with excellent undergraduate academic

credentials, with a strong preference for those who have participated in independent research. During the first year in the program, students must complete three formal laboratory-based research rotations. Each research rotation is intended to examine testable hypotheses, as well as to provide exposure to new laboratory techniques. At the conclusion of each rotation, a post-rotational seminar is presented to the Department. To enhance research exposure further, the Department offers a special course on Frontiers in Pharmacology to our first-year students.

During the first two years in the program, students are required to take a number of courses to prepare them for research careers in pharmacology. These include a core course in molecular and cellular biology overseen by the Graduate School, and Program core courses in Cell and Molecular Signaling and Principles in Pharmacology. Additional requirements include courses in Ethics, Biostatistics, and Reproducibility & Rigor. During the second year, a number of electives are also available emphasizing topics such as: neuropharmacology/neurobiology and cancer biology, bioinformatics, and structural biology.

The Ph.D. program in pharmacology trains graduate students to become proficient and successful investigators who are able to:

- Demonstrate a basic knowledge of central concepts of the biomedical sciences.
- Understand the historical basis as well as current concepts in the scientific discipline of pharmacology.
- Read and critically evaluate scientific literature relevant to pharmacology, in specific, and the basic and clinical biomedical sciences, in general.
- Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
- Writing: Present research results in peer-reviewed publications and in their doctoral dissertation.
- Speaking: Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
- Understand the basis of writing and submitting competitive applications for research funding.
- Develop ancillary skills, where necessary, to obtain positions outside of scientific research.
- Be competent in self-evaluation of acquired skills and understand how those skills may be perceived by external peers.
- Develop a mature and meaningful Personal Development Plan (PDP) that will facilitate attainment of career objectives.

## Courses

BIOS 6606 - Statistics for the Basic Sciences (3 Credits)

This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions: Enrollment in UCD-AMC graduate program or permission of the instructor. Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)**  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall.

**BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**  
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.

Grading Basis: Letter Grade

Repeatable. Max Credits: 20.

AMC-PHD PhD Students only

Typically Offered: Fall.

**PHCL 7600 - Frontiers in Pharmacology (1 Credit)**  
Course is intended to introduce students to cutting-edge pharmacology research and to the range of research opportunities available within the Pharmacology Training Program. Pharmacology Department faculty presentations will focus on cellular signaling, molecular mechanisms of drug actions, structure-based drug design.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7605 - Responsible Conduct of Research (1 Credit)**  
The Department of Pharmacology in the University of Colorado School of Medicine organizes and offers an interactive course during the fall semester entitled "Responsible Conduct of Research". The course is designed to inform students, trainees and faculty to the NIH requirements for ethical and responsible research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7613 - Pharmacology Journal Club (1 Credit)**  
The overall goal of the course is to teach the students to read and discuss current literature in their field and to gain a comprehensive view of the directions that lead to high-impact research. Students will present and discuss papers.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring.

**PHCL 7615 - Grant Proposals in Pharmacology (1 Credit)**  
We will learn principles of good grants(w)omanship and hone our skills in homework assignments and discussions. Our goal is to enable a better learning experience during comps proposal writing, by gaining the tools for optimized self-assessment. Prereq: IDPT 7811, IDPT 7812, IDPT 7813, IDPT 7814, IDPT 7815.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7620 - Principles of Pharmacology (6 Credits)**  
Lectures are provided in the general areas of pharmacokinetics, receptor theory, structure-activity relationships, drug metabolism, basic pharmacological mechanisms with a particular emphasis on systems such as the nervous system and cardiovascular system, as well as cancer and microbial chemotherapy. Prereq: IDPT 7811, 7812, 7813, 7814, 7815.

Restriction: Consent of Course Directors.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHCL 7650 - Research in Pharmacology (1-5 Credits)**  
Research work in pharmacology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHCL 8990 - Doctoral Thesis (1-10 Credits)**  
Doctoral thesis work in pharmacology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**David Port, Ph.D. Program Director**

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**Shanelle Felder, Program Administrator**

Shanelle.Felder@cuanschutz.edu | 303-724-3565

# Rehabilitation Science (PhD)

## Overview

The PhD in Rehabilitation Sciences is an interdisciplinary graduate school program housed within CU Physical Therapy.

The Rehabilitation Science PhD program is comprised of core and associated faculty, postdoctoral fellows, students and research assistants with a broad background, including physical therapy, medicine, psychology, engineering, and public health, all working together to improve the lives of people who live with disabilities.

The environment is highly collaborative, with strong mentors and state of the art facilities. While in the PhD Program, students develop a wide range of skills, including research and teaching; presenting nationally, and learning to write grants and publish manuscripts.

## Admission Requirements

Applicants must submit the following:

- Online CU Denver|Anschutz Graduate School application (included in the application is the Research Statement, Professional Background, and Future Goals Statement, and Colorado residency form)

- One (1) official transcript of all academic work completed to date. To be consider "official," the transcript must come from the issuing institution directly to the Rehabilitation Sciences PhD program at:

Graduate School  
University of Colorado Denver  
Campus Box 163  
PO Box 173364  
Denver, CO 80217-3364

- A non-refundable application fee, \$50 for domestic applicants, \$75 for international applicants [credit card (online only), check, or money order]. No application will be processed unless this fee is paid
- Three (3) letters of recommendation
- GRE test scores (or equivalent) and other materials as required by specific programs within the Rehabilitation Sciences PhD Program. The GRE General Test or the Revised General Test will be accepted. To send your GRE scores to the Rehabilitation Sciences PhD Program, use GRE code 4875.
- A list of one-to-three faculty members with whom the student is interested in working. Applicants are strongly encouraged to contact potential mentors prior to submitting their application.

International students must meet ALL of the requirements above and those required by International Admissions.

## Degree Requirements

In addition to the coursework below, students must also take:

- 5-8 credits of Specialization Electives
- at least 1 credit of Statistics/Data Management Elective

### First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
RHSC 7000	Foundations in Rehabilitation Science <sup>(May also be taken in Fall, Year 2)</sup>	2
RHSC 7001	Rehabilitation Science Seminar	1
RHSC 7910	Research Practicum in Rehabilitation Science I	3
BIOS 6601 or BIOS 6611	Applied Biostatistics I or Biostatistical Methods I	3
RHSC 7002	Professional Skills in Academia <sup>(May also be taken in Fall, Year 2)</sup>	2
PHCL 7605 or CLSC 7150	Responsible Conduct of Research <sup>(May also be taken in Spring, Year 1)</sup> or Ethics and Responsible Conduct of Research	1
RHSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>13-22</b>
<b>Spring</b>		
RHSC 7911	Research Practicum in Rehabilitation Science II	3
BIOS 6602 or BIOS 6612	Applied Biostatistics II or Biostatistical Methods II	3

PHCL 7605 or CLSC 7150	Responsible Conduct of Research <sup>(May also be taken in Fall, Year 1)</sup> or Ethics and Responsible Conduct of Research	1
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RHSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>8-17</b>

#### Summer

RHSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>22-49</b>

### Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
RHSC 7000	Foundations in Rehabilitation Science	2
RHSC 7001	Rehabilitation Science Seminar	1
RHSC 7002	Professional Skills in Academia	2
<b>Specialization Electives</b>		
RHSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>6-15</b>

#### Spring

Statistics/Data Management Elective

Select 1 course from the following:

CLSC 7101	Grant Writing I	
IDPT 7200	Scientific Writing for Doctoral Students	
NRSC 7661	Grant Proposal Writing Workshop	
RHSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>

#### Summer

RHSC 8990	Doctoral Thesis	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>8-35</b>

### Third Year & Beyond

Code	Title	Hours
<b>Year 3 Fall, Spring, Summer, &amp; Beyond:</b>		
RHSC 8990	Doctoral Thesis	1-10

The goal of the Rehabilitation Science (RHSC) Program at the University of Colorado is to prepare future generations of researchers to advance the science and practice of physical rehabilitation. Upon completion of the Rehabilitation Science PhD Program, students will be able to:

1. Critically analyze and integrate research findings from specialized disciplines to address complex problems of physical disablement
2. Design and implement rigorous, innovative, and ethical research that will advance theoretical and/or applied principles of clinical practice in rehabilitation
3. Disseminate findings of original research using standard scientific oral and written formats
4. Compete for funding from national agencies to support interdisciplinary research and educational initiatives in rehabilitation
5. Teach graduate level courses in a selected area of specialization within the field of rehabilitation

6. Effectively communicate with clinicians, research scientists, and students in the field of rehabilitation and its affiliated disciplines using the common language of disablement
7. Serve in leadership roles for professional activities that will advance the science and practice of rehabilitation medicine.

## Courses

### BIOS 6601 - Applied Biostatistics I (3 Credits)

Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

### BIOS 6602 - Applied Biostatistics II (3 Credits)

A continuation of BIOS 6601 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively. Multiple optional lab sessions offered.

Prerequisite: BIOS 6601

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### BIOS 6611 - Biostatistical Methods I (3 Credits)

This first course in applied statistics covers basic descriptive methods and probability; parametric and nonparametric inference for the one- and two-sample location problem; ANOVA, ANCOVA, and multiple linear regression. Matrix notation, R, and SAS are used. Prerequisite: differential calculus or permission of instructor

Grading Basis: Letter Grade

A-PUBH BIOS

Typically Offered: Fall.

### BIOS 6612 - Biostatistical Methods II (3 Credits)

This is a continuation of BIOS 6611 covering univariate linear modeling and emphasizing multiple regression and analysis of variance. Logistic regression and methods for correlated data are also covered. Matrix algebra and the statistical package SAS will be used. Prereq: BIOS 6611.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

### IDPT 7200 - Scientific Writing for Doctoral Students (2 Credits)

Scientific writing course for students engaged in research. Focuses on critical thinking, analytical writing, and oral presentation. Taught as a writing workshop, the course emphasizes effective communication with both professional and non-technical audiences. Restrictions: Must have passed preliminary examination; permission of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### NRSC 7661 - Grant Proposal Writing Workshop (1 Credit)

Course is practical workshop in grant-writing culminating in a mock review panel including course participants. Students will examine various proposal types/formats, then write their own proposal in the format of NRSA fellowship application. Restriction: Students with adequate neuroscience background. Prereq: NRSC 7610.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### PHCL 7605 - Responsible Conduct of Research (1 Credit)

The Department of Pharmacology in the University of Colorado School of Medicine organizes and offers an interactive course during the fall semester entitled "Responsible Conduct of Research". The course is designed to inform students, trainees and faculty to the NIH requirements for ethical and responsible research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### RHSC 7000 - Foundations in Rehabilitation Science (2 Credits)

This course provides an overview of the field of Rehabilitation Science and an introduction to disablement frameworks with an emphasis on biopsychosocial models of the enabling-disabling process across the life span. Restrictions: Instructor permission required for students not enrolled in the RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### RHSC 7001 - Rehabilitation Science Seminar (1 Credit)

Students will attend contemporary research seminars presented by established scientists, and will participate in group discussions to assess the implications of seminar topics on the full spectrum of disablement constructs in Rehabilitation Science ranging from pathophysiology to community participation. Prerequisites: RHSC 7000 Foundations in Rehabilitation Science or Instructor Permission. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

### RHSC 7002 - Professional Skills in Academia (2 Credits)

This course provides an overview of instructional methods and professional skills for academic educators and scientists. Topics include instructional methods for graduate education, and development of professional skills in communication, management, networking, and promotion for academic careers in Rehabilitation Science. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**RHSC 7910 - Research Practicum in Rehabilitation Science I (3 Credits)**  
This research practicum exposes students to a variety of experimental tools and techniques available to Rehabilitation scientists. Mentored practicum experiences are selected by each student with permission from faculty mentor(s). Prerequisites: Instructor permission. Restrictions: Instructor permission required for students non enrolled in RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Rehabilitation Science. Prerequisites: Instructor permission. Restrictions: Enrollment in RHSC Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

**Research Practicum:** Before selecting a thesis advisor, students will complete a research practicum rotation with members of the RHSC Training Faculty in their first two semesters of enrollment. In special instances a third practicum may be completed during the summer of the first year, with permission of the GTC. Rotations can only be completed with RHSC affiliated faculty, except with special permission from the GTC. Students may choose to complete their two rotations with the same or different faculty mentors. Rotations are arranged by the student through consultation with the Program Director and subsequent discussions with the Program faculty member.

For additional policies, please refer to the Graduate School Policies page (p. 166).

## Contact Us

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303-724-9170

**Miranda McDevitt**

Program Administrator

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303-724-3350

# Structural Biology & Biochemistry (PhD)

## Overview

The Structural Biology and Biochemistry (STBB) PhD Program is an interdepartmental graduate training program offered within the School of Medicine at the University of Colorado Anschutz Medical Campus in Aurora, Colorado. Student training places a major emphasis on research experiences, both in lab rotations and thesis projects, and includes a range of coursework in biochemistry, biophysics, drug design, pharmacology, and cellular, molecular, and structural biology.

The STBB Program encourages students to engage in collaborative projects and provides shared mentoring that can include faculty from

outside The Program. Such interactions are geared towards fostering interdisciplinary training.

Faculty research activities cover a range of structural and computational techniques including NMR Spectroscopy, X-Ray.

Crystallography, Cryo-EM, Mass Spectrometry and Proteomics, Biophysics, and Peptide/Protein Chemistry that are focused on a diversity of biological targets such as signaling molecules, transmembrane proteins, RNA, genome bioinformatics, lipids, and oligosaccharides.

## Admissions Requirements

### Admission Philosophy

Students are considered and selected on the basis of past academic performance, previous research experience, recommendations, and individual interviews. While previous experience in structural biology and biochemistry coursework and research is helpful, the STBB program welcomes applicants with varied backgrounds. Students most likely to succeed have traditionally been those with intellectual achievement and creativity, first-hand understanding of laboratory research, and a strong personal desire and motivation to progress in their scientific training.

### Entrance Requirements

Students are selected on the basis of past academic performance and, where possible, individual interviews. We select students who show intellectual vigor, independence, and strong motivation to become creative and successful scientists. The faculty recognizes that students who are attracted to a career in Structural Biology and Biochemistry come from highly varied backgrounds. Although there are no specific undergraduate course requirements, students with a good undergraduate foundation in math and the biological and chemical sciences have performed best in the Program. It is suggested that applicants have completed courses in biology, chemistry, biochemistry, and cell and molecular biology before entering the Program.

The Structural Biology and Biochemistry Program requires that applicants achieve a minimum cumulative undergraduate GPA of 3.0, and recommends that applicants complete the Graduate Record Examination (GRE). Foreign applicants must demonstrate proficiency in English.

### How to Apply

DEADLINE FOR APPLICATIONS IS DECEMBER 1st.

PRIORITY DEADLINE FOR INTERNATIONAL APPLICANTS IS NOVEMBER 1.

To apply for admission applicants must submit the following:

- Online Graduate School application (<https://graduateschool.ucdenver.edu/admissions/>).
- A \$50.00 domestic and \$75.00 international non-refundable application fee [credit card (on-line only), check, or money order]. No application will be processed unless this fee is paid.
- Three (3) letters of recommendation. The most informative letters will come from Professors who have mentored you in your research experiences. Professors who have taught science classes you have been enrolled in, or whom you have worked with in an advisory capacity, are also good choices. We do not recommend that you ask postdocs, technicians or fellow students for letters. Likewise, members of the community are generally not good choices, as



typically their understanding of biomedical PhD training, and hence their ability to evaluate your potential, is limited.

- GRE test scores are optional but recommended. Use GRE code 4875.
- TOEFL or IELTS scores and financial support verification (international students only).
- One (1) official transcript of all academic work completed to date. To be considered "official", the transcripts must come from the issuing institution directly to the University of Colorado Denver Graduate Admissions.

Electronic Transcripts should be sent to: [graduateadmissions@ucdenver.edu](mailto:graduateadmissions@ucdenver.edu)

If sending a physical transcript, please mail to:

Graduate School  
Campus Box 163  
PO Box 173364  
1380 Lawrence Street Suite 1250  
Denver, CO 80205-3364

## Degree Requirements

### First Year

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BMSC 7806	Core I: Foundations in Biomedical Sciences	6
BMSC 7810	Core Topics in Biomedical Science <sup>A</sup> Discovering Protein Structure and function	1-6
BMSC 7810	Core Topics in Biomedical Science <sup>B</sup>	1-6
STBB 7650	Research in Structural Biology & Biochemistry	1-10
STBB 7650	Research in Structural Biology & Biochemistry	1-10
STBB 7660	Structure Seminar	1
<b>Hours</b>		<b>11-39</b>
<b>Spring</b>		
STBB 7608	Molecular Interactions	3
STBB 7609	Biophysics & Spectroscopy	3
STBB 7650	Research in Structural Biology & Biochemistry	1-10
STBB 7660	Structure Seminar	1
<b>Hours</b>		<b>8-17</b>
<b>Total Hours</b>		<b>19-56</b>

### Second Year

Course	Title	Hours
<b>Second Year</b>		
<b>Fall</b>		
STBB 7631	Molecular Structure A	1.5
STBB 7632	Molecular Structure B	1.5
STBB 7633	Molecular Structure C	1.5
STBB 7660	Structure Seminar	1
PHCL 7605	Responsible Conduct of Research	1
<b>Hours</b>		<b>6.5</b>

<b>Spring</b>		
STBB 7608	Molecular Interactions	3
STBB 7609	Biophysics & Spectroscopy	3
STBB 7650	Research in Structural Biology & Biochemistry	1-10
STBB 7670	Independent Study in Structural Biology and Biochem	1-3
<b>Hours</b>		<b>8-19</b>
<b>Total Hours</b>		<b>14.5-25.5</b>

### Third Year & Beyond

Course	Title	Hours
<b>Third Year</b>		
STBB 8990	Doctoral Thesis (Fall/Summer/Spring)	1-10
<b>Hours</b>		<b>1-10</b>
<b>Total Hours</b>		<b>1-10</b>

## Learning Objectives

### Goals of the Program

- The goals of the Structural Biology and Biochemistry Program are to:
- Foster scientific excellence and innovation in the field of bimolecular structure and function.
  - Develop and advance expertise and technology to support cutting-edge research in biomedical sciences
  - Provide training and career development for outstanding scientists
  - Identify and characterize molecular targets and develop innovative therapeutics and diagnostic tools
  - Exploit discoveries and intellectual properties through strategic partnerships with the industry.

### Learning Outcomes

- The PhD program in Structural Biology and Biochemistry trains graduate students to become proficient and successful investigators who are able to:
- Demonstrate a basic knowledge of central concepts in the biomedical sciences.
  - Understand the current concepts in structural biology and biochemistry.
  - Read and critically evaluate the scientific literature.
  - Formulate hypotheses based on current concepts in the field and design, conduct, and interpret their own research projects.
  - Present research results in peer-reviewed publications and in a dissertation.
  - Communicate research results effectively through oral presentations at scientific seminars, conferences, and other venues.
  - Write a competitive application for research funding.
  - Develop ancillary skills, where necessary, to obtain positions outside of scientific research.

With this knowledge, they will understand molecular structures and mechanisms. Training is provided in the following exciting areas:

- Biomolecular Interactions.
- Protein and RNA structure, function, and dynamics.

- Computational studies of structure and function relationships of biomolecules.
- Structure-based design of new molecules important in biology, biochemistry, and pharmacology.
- Proteomics and metabolics.

The courses and research emphasize both breadth and flexibility while encouraging interdisciplinary training. Students may choose research projects from a variety of laboratories at the University of Colorado and the National Jewish Medical and Research Center. Training will result in a PhD degree awarded by the Program in Structural Biology and Biochemistry.

## Courses

**BMSC 7806 - Core I: Foundations in Biomedical Sciences (6 Credits)**  
Course will focus on the fundamental principles of biomedical sciences. Lectures and recitations/discussions will primarily address the basics of molecular biology, biochemistry, genetics, cell biology and energetic principles. Course is typically limited to biomedical science PhD and BSBT MS students. Previously offered as IDPT 7806

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall.

**BMSC 7810 - Core Topics in Biomedical Science (1-6 Credits)**  
Sections focus on different core topics in biomedical science, and will address subject areas such as protein structure and function, neurobiology, embryology, stem cell research, and cancer biology. Students can enroll in multiple Core Topic Courses topics in one semester. Previously offered as IDPT 7810.

Grading Basis: Letter Grade

Repeatable. Max Credits: 20.

AMC-PHD PhD Students only

Typically Offered: Fall.

**STBB 7608 - Molecular Interactions (3 Credits)**

Provides chemical/physical basis for protein structure, folding, function & stability; presents methods/principles of protein/peptide purification & enzyme catalysis including electron transfer & mutagenesis. The role of molecular dynamics & use of molecular simulations in the investigations of protein-ligand/protein-protein interactions. Cross-listed with PHSC 7608.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7609 - Biophysics & Spectroscopy (3 Credits)**

This course will teach fundamentals of modern molecular spectroscopies and biophysical techniques as applied to biomolecules and the structural/dynamic information they afford. Cross listed with PHSC 7609

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**STBB 7631 - Molecular Structure A (1.5 Credits)**

Gain an in-depth understanding of the underlying principles of an NMR experiment, so that student can turn NMR theory into NMR practice for their research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7632 - Molecular Structure B (1.5 Credits)**

Understand the theory and practice of structural determination using x-ray crystallography.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7633 - Molecular Structure C (1.5 Credits)**

The purpose of this course is to provide students with a concise understanding of biological mass spectrometry and its application to study and characterize various classes of biomolecules in state of the art research. Course is 7.5 weeks.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**STBB 7650 - Research in Structural Biology & Biochemistry (1-10 Credits)**

Research work in Structural Biology and Biochemistry. 2 laboratory hours per week per credit.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**STBB 7660 - Structure Seminar (1 Credit)**

Seminar series provides a forum for the presentation of scientific experiments and information in structural biology by faculty, postdoctoral fellows and graduate students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**STBB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Structural Biology and Biochemistry.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Policies

Please refer to the Graduate School Policies page (p. 166).

## Contact Us

**Mair Churchill, PhD**

Program Director

Mair.Churchill@cuanschutz.edu

303-724-3670

**Junior Reina**

Program Administrator

Junior.Reina@cuanschutz.edu

303-724-4752

University of Colorado Anschutz Medical Campus

12800 E. 19th Avenue

Mailstop 8300

Aurora, CO 80045

# Physical Therapy (DPT)

## Director's Welcome

Welcome to the website of the University of Colorado Physical Therapy Program! As one of the top programs in the country, we are proud of our commitment to physical therapy education, research, and service since our initial accreditation in 1947.

Our curriculum introduces students to a clinical education experience within their first semester and provides the option of a unique year-long, paid internship. Students are very involved in service opportunities, volunteering at the Stout Street Clinic for individuals that experience homelessness, DAWN Clinic for the high-needs Aurora community, and other non-profit organizations in the Denver metropolitan area.

We are deeply committed to our research endeavors, offering a PhD in Rehabilitation Sciences (<https://www.ucdenver.edu/academics/colleges/Graduate-School/academic-programs/rehabilitation-science/Pages/Overview.aspx>), leading the way with groundbreaking grants and clinical studies, and providing a number of opportunities for students to get involved with faculty research. Our CU Rehabilitation Science Consortium houses multiple laboratories, providing a space for research assistants, post-doctoral fellows and PhD students participating in faculty research.

Our partnerships on the Anschutz Medical Campus and surrounding greater Denver area enhance our research capabilities and strengthen our clinical partnerships. We have over 120 clinical partners throughout the region, with The Rocky Mountain Regional VA Medical Center, Children's Hospital and UCHHealth located steps away.

I welcome prospective students and program alumni interested in physical therapy education to reach out to our program staff and faculty. Your active involvement is essential to the success of the University of Colorado Physical Therapy Program. We look forward to our continued growth and progress within the University and the profession!

**Michael Harris-Love, PT, MPT, DSc, FGSA**

Associate Dean for Physical Therapy Education and Director, Physical Therapy Program

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The University of Colorado has established a tradition of excellence in the educational preparation of physical therapists for over 70 years. Our strong ranking is linked to our superb faculty, our location on the state-of-the-art Anschutz Medical Campus, commitment to the education of our students and a strong network of supportive alumni and clinical faculty throughout the Rocky Mountain Region and the country. The Physical Therapy Program is housed within the Department of Physical Medicine & Rehabilitation, within the School of Medicine.

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## Mission

The University of Colorado Physical Therapy Program leads discovery and innovation to improve movement, participation, health, and wellness for individuals and society through excellence in education, research, clinical care, and service.

## Vision

We transform health and foster wellness in individuals and society through education, discoveries, engagement and innovation.

## Values

Respect: For all individuals' safety, rights, dignity, and perspectives

Integrity: Because professional behavior reflects who we are

Altruism: In service to the individual, community, and organization

Diversity: For inclusivity in all endeavors

Accountability: To all those seeking care and providing care within our profession and health care systems

Passion: Because we are committed to lifelong learning, service, and community engagement

Collaboration: To leverage collective input from all individuals

Leadership: Within the university, profession and community at large

Quality: To attain excellence in all we do

## Contact Info

### ADMISSION INQUIRIES

Phone: (303) 724-9144

PT.Admissions@cuanschutz.edu

Learn more about PT Admissions (<https://medschool.cuanschutz.edu/physical-therapy-program/education-programs/doctor-of-physical-therapy/admissions-overview/>)

### GENERAL INQUIRIES

Phone: (303) 724-CUPT (2878)

Fax: (303) 724-9016

## PHYSICAL ADDRESS

CU Physical Therapy Program  
 Education 2 South  
 3rd Floor, Room 3106  
 Mail Stop C244  
 13121 E. 17th Avenue  
 Aurora, CO 80045  
 Directions & detailed map (<http://myatlascms.com/map/?id=95#!ct/989>)

The University of Colorado Physical Therapy Program responds to the needs of the students and the community. We welcome your comments, suggestions, ideas and constructive criticism.

## Careers

Find job openings with the Physical Therapy Program via CU Careers (<https://cu.taleo.net/careersection/2/moresearch.ftl>).

## Accreditation

The Physical Therapy Program at University of Colorado is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, Virginia 22305-3085; 703-706-3245; [accreditation@apta.org](mailto:accreditation@apta.org); <http://www.captionline.org> (<http://www.captionline.org/>). If needing to contact the program/institution directly, please call 303-724-2878 or e-mail [vonelle.kelly@cuanschutz.edu](mailto:vonelle.kelly@cuanschutz.edu)

On November 3, 2020, the Commission on Accreditation in Physical Therapy Education (CAPTE) of the American Physical Therapy Association (APTA) reaffirmed the accreditation status based upon compliance with all of the evaluative criteria. The accreditation status remains in effect for the full 10-year period, until 2031, at which time the accreditation status will undergo a self-study report and on-site review.

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The University of Colorado Physical Therapy Program is a member of the American Council of Academic Physical Therapy (ACAPT) which supports academic institutions to strive for excellence in physical therapist education. We encourage faculty, clinical educators, academic administrators and students interested in pursuing teaching to check out [acapt.org](http://acapt.org) (<http://acapt.org/>).

## Admissions

**\*IMPORTANT\***: REQUIREMENTS BELOW ARE BASED ON THE CU ANSCHUTZ CATALOG PRINT DATE AND MAY NOT BE ACCURATE FOR THE 2022-2023 APPLICATION CYCLE - SEE THE PT PROGRAM WEBSITE (<https://medschool.cuanschutz.edu/physical-therapy-program/education-programs/doctor-of-physical-therapy/apply/>) FOR UPDATES

- COVID-19 Updates for the 2022-23 Application (<https://www.ucdenver.edu/docs/librariesprovider91/admissions-related/covid-19-application-changes-2020-21.pdf>)

## Important Dates for Applicants - 2022-23 Application:

Date	Item
June 15, 2022	2022-2023 PTCAS Applications Open
October 3, 2022	Application deadline; PTCAS application must be submitted by this date by 11:59pm EST
October 3, 2022	Supplemental Fee Payment must be received by 4 PM MST on October 3rd, the same date as the PTCAS application deadline
Mid-November 2022	PTCAS Verification Deadline (applications not verified by PTCAS by this date will NOT be reviewed)
Early/Mid-January 2023 (stay tuned)	Class of 2025 Interviews
Late January through Late March 2023	Offers of admission sent
April 2023	Class finalized
Likely May 31, 2023 - June 2, 2023 (stay tuned)	Orientation to DPT Program
Likely June 5, 2023	Summer semester begins for the Class of 2025

## Eligibility

### Baccalaureate degree

- Must be completed through a regionally-accredited institution by the start of the Program.

### GPA

- Qualified applicants have a cumulative GPA of 3.0 or higher
- GPA is one of several important factors in admissions decisions. It is important to consider that the average cumulative GPA of admitted applicants is above 3.6.
- Applicants with a minimum GPA between 2.7 and 3.0 may still be considered for admission only when there is evidence of a significant positive trend in grades over time (evidenced by a last 60-credit GPA of greater than or equal to 3.5) AND strong grades in courses, such as anatomy, physiology, and upper-division sciences (biomechanics, exercise physiology, etc), and there are other unique circumstances or characteristics the applicant brings forward through their application during the admissions process.
- To view competitive GPAs, visit our DPT Statistics Page (<https://medschool.cuanschutz.edu/physical-therapy-program/education-programs/doctor-of-physical-therapy/about-our-program/outcomes-demographics/>)
- Please see the PTCAS website to learn how to calculate GPAs at <http://www.ptcas.org/GPA> (<http://www.ptcas.org/GPA/>).

### Graduate Record Exam

- GRE is NO LONGER REQUIRED for admission

### English as a Foreign Language Applicants

- 80 on the Test of English as a Foreign Language (TOEFL) Internet-Based test

### COVID -19 Vaccination Requirements

The University of Colorado, Anschutz Medical Campus' policies **require full vaccination against COVID-19** for students, faculty and staff and the University of Colorado as a whole requires full vaccination against COVID-19 on all four CU campuses. This requirement would need to be met at least 4 weeks prior to Orientation, at the start of the PT Program. (Read more about the CU requirement (<https://www.cuanschutz.edu/coronavirus/vaccine-information/>), and find FAQs, here (<https://www.cu.edu/vaccine-requirement/>)). There are NO religious exemptions available to students, but students may seek a medical exemption from the COVID-19 vaccination requirement, which will be reviewed at the campus level and will be reviewed according to a strict review process for medical conditions that pose absolute contraindications to COVID-19 vaccination as outlined in the CU Anschutz Medical Campus policy: (<https://www.ucdenver.edu/docs/librariesprovider284/default-document-library/3000-facilities-management/3012---covid-19-vaccination-requirement-and-compliance.pdf?sfvrsn=3e48cbba>).

Footnote 2 of this policy states "Currently, the only absolute contraindications to COVID-19 vaccination are: (i) severe immediate allergic reaction to previous dose or to a component of the COVID-19 vaccine, (ii) immediate reaction of any severity to a previous dose or known (diagnosed) allergy to a component of the COVID-19 vaccine." In the event a student receives an approved medical exemption, it should be noted that the exemption could impact (i) the program's ability to place such a student in certain clinical sites, (ii) the student's ability to engage in educational activities within close proximity of others (common in DPT lab skills courses), and (iii) the student's overall progression in the educational curriculum with the cohort.

## Prerequisites

### 2022-2023 Application Cycle

#### Observation Hours:

- Observation hours are not required.
- Becoming a physical therapist is a significant investment of both time and money and it is essential that applicants have broad knowledge about the profession prior to entering a DPT program to ensure being a physical therapist is the right career choice for them. There are many ways to learn about the profession including observing a licensed physical therapist in a variety of settings, conducting informational interviews, referencing the American Physical Therapy Association (APTA) website, listening to podcasts, observing other healthcare providers, and more.

#### References:

- We require 2 letters from people who know the applicant well, with the exception of family, friends, and clergy. The most common references we receive are from professors, supervisors, and licensed physical therapists.

#### Coursework Prerequisites

- All prerequisite courses must be completed prior to matriculation, although an application may be submitted prior to completing all prerequisite coursework. Only one (1) prerequisite science course may be in progress in the spring semester prior to matriculation. Courses completed with a C- or below are not acceptable. It is recommended that all science and math courses be completed within the last five (5) years. Anatomy, physiology and at least one upper-division science must have been completed within the last ten (10) years, and preferably within the last five (5) years. Advanced Placement (AP) and International Baccalaureate (IB) credit is accepted only if a transcript reflects the credit earned.
- All prerequisite courses in math and science must be completed at an institution of higher education accredited regionally. Courses in English and Psychology from nationally-accredited educational institutions may be considered upon individual review.

**Note:** Pass/fail grades received in courses taken in spring, summer, or fall 2020 are accepted due to the COVID-19 pandemic.



## Options to fulfill Anatomy and Physiology:

- *Option 1 of 2 Anatomy and Physiology*
  - Human or Mammalian Anatomy with lab (upper-division preferred) - 4 semester hours
  - Human or Mammalian Physiology with lab (upper-division preferred) - 4 semester hours
- *Option 2 of 2 Anatomy and Physiology*
  - Combined Human or Mammalian Anatomy and Physiology with labs (upper-division preferred) - 8 semester hours

## Options to fulfill Upper-Division Science, Exercise Physiology or Biomechanics:

- Option 1: Any upper-division science (300/3000 level or higher) - 3 or 4 semester hours
- Option 2: Exercise Physiology (lower-division OR upper-division are acceptable; upper-division is strongly recommended) - 3 or 4 semester hours
- Option 3: Biomechanics (lower-division OR upper-division are acceptable; upper-division is strongly recommended) - 3 or 4 semester hours

## Additional Course Prerequisites:

- **Lab-based Chemistry** - (survey or introduction to chemistry courses for non-science majors are **NOT** accepted) - 8 semester hours
- **Lab-based Physics** - (algebra or calculus-based; survey or introduction to physics courses for non-science majors are **NOT** accepted) - 8 semester hours
- **2 Psychology courses** - (abnormal and developmental psychology preferred) - 6 semester hours total
- **Statistics** - 3 semester hours
- **Writing or English Composition** (any writing-intensive course) - 3 semester hours

## 2022-2023 Application Cycle

### Prerequisite Change

- Any upper-division science (300/3000 level or higher) OR Exercise Physiology OR Biomechanics (lower-division OR upper-division are acceptable; upper-division is strongly recommended) - 3 or 4 semester hours

## Application Process

**Please be aware that the PTCAS verification process is typically 4-6 weeks. It is the responsibility of the applicant to confirm with PTCAS that all application materials have been received in order for verification to occur.**

While the deadline to electronically submit an application is October 1 each year, it is highly advised to submit early enough to have PTCAS verification completed by Mid-November 2022 (stay tuned for exact date). Applications not verified by PTCAS by this deadline will **NOT be reviewed**.

### Supplemental Fee

The **supplemental fee** is a one-time, non-refundable, fee payable to the University of Colorado that *must be paid by the PTCAS application deadline of October 1st*. Payment can be made directly at the following link: [https://isis-cs.prod.cu.edu/psc/csp/EMPLOYEE/HRMS/c/CU\\_SELFSESRV\\_PUB.CU\\_APPFEE\\_PAYMENT.GBL?INSTITUTION=CUDEN](https://isis-cs.prod.cu.edu/psc/csp/EMPLOYEE/HRMS/c/CU_SELFSESRV_PUB.CU_APPFEE_PAYMENT.GBL?INSTITUTION=CUDEN). This fee is due at the time the application is submitted to PTCAS (deadline is 10/1/2021). The Supplemental fee MUST be paid in order for your application to be reviewed and considered by our PT Program's Admissions Committee. The supplemental application fee supports a thorough review of each application, including Altus Suite content and a Holistic Review, by a team dedicated to learning as much as possible about each applicant. If the applicant received a fee waiver from PTCAS, they are also eligible for a fee waiver from the University of Colorado. Documentation of the approved fee waiver must be sent to PT.Admissions@cuanschutz.edu.

### Other Fees

- **PTCAS Initial Program Designation fee:** \$155
- **Each Additional Program PTCAS fee:** \$60

### Interviews

- **Class of 2025 Interviews** will be held January 2023 (exact dates and location TBD). Applicants will complete two, one-on-one 20-25-minute interviews with a faculty member and/or clinical partner.

**Invitations to interview will likely be sent in mid-December 2022.**

## Matriculation Requirements

### Other program requirements upon acceptance Admissions Deposit

Students admitted into the program must submit a \$1,000 confirmation deposit to hold their place in the class upon receiving an offer of admission. This deposit is applied to tuition and fees for the first semester of attendance and is non-refundable. Please use this form (<https://isis-cs.prod.cu.edu/>)

psc/cspod/EMPLOYEE/HRMS/c/CU\_SELFSESRV\_PUB.CU\_APPFEE\_PAYMENT.GBL?INSTITUTION=CUDEN) to pay online via credit card or checking account (ACH) your non-refundable tuition deposit for an academic program. These fees are non-refundable.

### Technical Standards

All students must meet the technical standards ([https://medschool.cuanschutz.edu/docs/librariesprovider91/admissions-related/technical-standards-for-admission\\_nov-2021.pdf?sfvrsn=258adbba\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider91/admissions-related/technical-standards-for-admission_nov-2021.pdf?sfvrsn=258adbba_2)) of the DPT Program. Every applicant offered admission must sign a document indicating they are able to meet the technical standards in order to be admitted.

### Completion of all outstanding prerequisite coursework

Only 1 science prerequisite may be in progress in the Spring semester prior to matriculation. All prerequisite coursework must be satisfactorily completed prior to matriculation.

### Official Transcripts

Official transcripts from every higher education institution ever attended must be sent to the PT Program. This includes all spring 2021 course grades. Final transcript(s) showing a conferred degree must be on file prior to matriculation. For incoming students finishing their undergraduate degrees, transcript with a posted degree must be received by June 15, 2022 (or June 15th of the summer in which a student is starting the PT Program).

### Financial Aid Application

If you intend to apply for financial aid, review the Steps for Applying. Also ensure you use school code **004508** on your FAFSA.

### Current CPR certification - Health Professionals course

We require the BLS for Healthcare Providers. Go to the American Heart Association (<https://www.heart.org/?identifier=3012360>) to find a course near you. *WE WILL ONLY ACCEPT COURSES TAKEN THROUGH THE AMERICAN HEART ASSOCIATION.*

### Required Immunizations

All students in the School of Medicine must comply with required immunizations and tests. All students must be in compliance with updated vaccines and tests prior to matriculation. All PT students are tracked throughout the Program to make certain they stay in compliance, both regarding School of Medicine and the various clinical setting requirements.

The University of Colorado, Anschutz Medical Campus' policies require full vaccination against COVID-19 for students, faculty and staff and the University of Colorado as a whole requires full vaccination against COVID-19 on all four CU campuses. This requirement would need to be met at least 4 weeks prior to Orientation, at the start of the PT Program. (Read more about the CU requirement (<https://www.cu.edu/vaccine-requirement/>), and find FAQs (<https://www.cu.edu/vaccine-requirement/>), here.) There are NO religious exemptions available to students, but students may seek a medical exemption from the COVID-19 vaccination requirement, which will be reviewed at the campus level and will be reviewed according to a strict review process for medical conditions that pose absolute contraindications to COVID-19 vaccination as outlined in the CU Anschutz Medical Campus policy: (<https://www.ucdenver.edu/docs/librariesprovider284/default-document-library/3000-facilities-management/3012---covid-19-vaccination-requirement-and-compliance.pdf?sfvrsn=3e48cbba>) Footnote 2 of this policy states "Currently, the only absolute contraindications to COVID-19 vaccination are: (i) severe immediate allergic reaction to previous dose or to a component of the COVID-19 vaccine, (ii) immediate reaction of any severity to a previous dose or known (diagnosed) allergy to a component of the COVID-19 vaccine." In the event a student receives an approved medical exemption, it should be noted that the exemption could impact (i) the program's ability to place such a student in certain clinical sites, (ii) the student's ability to engage in educational activities within close proximity of others (common in DPT lab skills courses), and (iii) the student's overall progression in the educational curriculum with the cohort.

### Completed Background Check

All incoming students must give permission for a background check and students are responsible for any associated costs. The contact is made through PTCAS by an external vendor called Certiphi when PTCAS is notified of your accepted offer by the Program. The student will receive an email from Certiphi with the address, StudentEdition@ceriphi.com, that includes a verification code.

If you are planning on applying to the CU PT program and have previously been convicted of a misdemeanor related to any type of assault or have been convicted of any type of felony, please contact Dr. Mary Jane Rapport, Director of PT Admissions, either by e-mail ([maryjane.rapport@CUAnschutz.edu](mailto:maryjane.rapport@CUAnschutz.edu)) or at 303-724-9148 to discuss your situation confidentially.

### Completed Residency Form

Completion of a Verification of Colorado Residency form is required. All students, even non-residents, must fill out all or part of this form. Information about how to establish Colorado residency. Please contact [TuitionClassification@cuanschutz.edu](mailto:TuitionClassification@cuanschutz.edu) with any questions regarding residency.

### Completed Military Service Form (online) if applicable

Male students born after December 31, 1959 must certify that they have registered with Selective Service (or are exempt from Selective Service registration) in order to register at any state-supported institution of higher education. Please go to <https://www.sss.gov/> and make sure you have complied with this law prior to your arrival on campus.

### Completed Drug Screening

In June 2021, the program will pay for an initial 10-panel drug screening. All incoming students must take and pass a 10-panel drug screening. The screening will occur during the first month of summer semester and costs for this initial screening will be covered by the Program. The student will be responsible for the cost of any additional screenings required by program or clinical sites.

## The University of Colorado Physical Therapy Program offers three educational opportunities in clinical care and rehabilitation science.

### Doctor of Physical Therapy (DPT)

Educating future leaders in the Physical Therapy profession and community.

University of Colorado's Physical Therapy Program is within the Department of Physical Medicine & Rehabilitation within the School of Medicine.

### Residency in Pediatric Physical Therapy

An opportunity for specialization through clinical and didactic education.

University of Colorado's Residency in Pediatric Physical Therapy is in collaboration with JFK Partners.

Learn more (<https://medschool.cuanschutz.edu/physical-therapy-program/education-programs/pediatric-residency/>)

### PhD in Rehabilitation Science

An interdisciplinary program educating future scientists.

University of Colorado's PhD in Rehabilitation Science is within the Graduate School (p. 218).

## PT Degree Requirements

The DPT degree requires completion of 116 credit hours, which includes 38 weeks of clinical education. Students complete and present a capstone project in year 3 before the final clinical internship

The University of Colorado Physical Therapy Program has established a tradition of excellence for over 70 years. Our 2.5 year graduate professional Doctor of Physical Therapy (DPT) degree boasts superb faculty, a location on the state-of-the-art Anschutz Medical Campus, commitment to the education of a diverse body of students and a strong network of supportive alumni and clinical faculty.

The PT Program educates competent, ethical physical therapists to assume the multi-faceted roles of clinical practitioner, patient manager, teacher, researcher, administrator, consultant and advocate. In addition to compassion, character and professionalism, certain essential skills are required in order to complete the PT Program. Upon successful completion of the PT Program, graduates are eligible to take the National Physical Therapy Exam (NPTE) in any state.

## DPT Curriculum

### Year 1 Curriculum

Course	Title	Hours
<b>Year 1</b>		
<b>Summer</b>		
DPTR 5001	Clinical Anatomy I	5
DPTR 5171	Health Promotion and Wellness I	1
DPTR 5201	Examination & Evaluation I	2
DPTR 5211	Foundations of Intervention I	2
DPTR 5711	Professional Development I	2
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>12</b>

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
DPTR 5011	Neuroscience	3
DPTR 5101	Movement Science I	3
DPTR 5141	Human Growth & Development	2
DPTR 5151	Motor Control & Motor Learning	2
DPTR 5202	Examination and Evaluation II	2
DPTR 5212	Foundations of Intervention II	2
DPTR 5621	Evidence Based Practice	3
DPTR 5901	Integrated Clin Experience I	1
<b>Hours</b>		<b>18</b>
<b>Spring</b>		
DPTR 5111	Exercise Science	2
DPTR 5161	Psychosocial Aspects of Care I	1
DPTR 5301	Medical Conditions I	4
DPTR 5401	Musculoskeletal Conditions I	4
DPTR 5501	Neuromuscular I	3
DPTR 5631	Clinical Reasoning I	1
DPTR 5731	Healthcare Delivery I	1
IPCP 5000	Interprofessional Collaborative Practice	1
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>35</b>

## Year 2 Curriculum

Course	Title	Hours
<b>Year 2</b>		
<b>Summer</b>		
DPTR 6002	Clinical Anatomy II	3
DPTR 6402	Musculoskeletal Conditions II	2
DPTR 6502	Neuromuscular Conditions II	2
DPTR 6931	Clinical Education I	5
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>12</b>

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
DPTR 5162	Psychosocial Aspects Care II	2
DPTR 6102	Movement Science II	2
DPTR 6302	Medical Conditions II	2
DPTR 6403	Musculoskeletal Conditions III	4
DPTR 6503	Neuromuscular Conditions III	4
DPTR 6632	Clinical Reasoning II	1
DPTR 6712	Professional Development II	2
IPHE 6000	IPE Healthcare Ethics & Health Equity	0
DPTR 6902	Integrated Clinical Experience II	1
<b>Hours</b>		<b>18</b>
<b>Spring</b>		
DPTR 6303	Medical Conditions III	3
DPTR 6633	Clinical Reasoning III	2
DPTR 6713	Professional Development III	1

DPTR 6732	Healthcare Delivery II	3
DPTR 6932	Clinical Education II	6
DPTR 7112	Applied Exercise Science	3
<b>Hours</b>		<b>18</b>
<b>Total Hours</b>		<b>36</b>

### Year 3 Curriculum

Course	Title	Hours
<b>Year 3</b>		
<b>Summer</b>		
DPTR 7171	Health Promotion and Wellness II	3
DPTR 7212	Elective	1
DPTR 7641	Integrated Practice	3
DPTR 7651	Clinical Reasoning Capstone	4
<b>Hours</b>		<b>11</b>
<b>Total Hours</b>		<b>11</b>
<b>Year 3</b>		
<b>Fall</b>		
DPTR 7933	Clinical Education III	10
<b>Hours</b>		<b>10</b>
<b>Total Hours</b>		<b>10</b>

#### The following are expected minimum outcomes for our students:

- 90% of our graduates will pass the NPTE on their first attempt to become licensed physical therapists.
- 85% of our graduates will feel competent to practice autonomously as Doctors of Physical Therapy within their first year post-graduation.
- All of our graduates will use critical thinking, evidence, and clinical reasoning in physical therapy patient management.
- All of our graduates will be prepared to provide physical therapy care to meet the needs of patients across the lifespan.

For more information about our Doctor of Physical Therapy Program, please contact CU Physical Therapy Admissions by phone at (303) 724-9144 or email at [PT.Admissions@cuanschutz.edu](mailto:PT.Admissions@cuanschutz.edu)

#### DPTR 5001 - Clinical Anatomy I (5 Credits)

This course follows a regional approach to gross anatomy of the musculoskeletal, circulatory and nervous systems of the upper and lower extremities, thorax and head and neck. Supplemented by cross sectional anatomy, radiographic and digital imaging.

Grading Basis: LTR

Typically Offered: Summer

#### DPTR 5011 - Neuroscience (3 Credits)

This course provides a framework for understanding the structural and functional organization of the human nervous system. Principles and applications of neurophysiology, neuroanatomy and functional correlates are included. Finally, diseases and dysfunctions of the nervous system that are relevant to current practice are introduced.

Grading Basis: LTR

Typically Offered: Fall

#### DPTR 5101 - Movement Science I (3 Credits)

This course investigates movement science with emphasis on foundational biomechanical principles related to human posture and movement. Qualitative and quantitative movement analysis is presented with emphasis on clinical application.

Grading Basis: LTR

Typically Offered: Fall

#### DPTR 5111 - Exercise Science (2 Credits)



This course will provide students with the current state of knowledge in the physiology of exercise. A systems approach will be used to provide a thorough understanding of the acute and chronic adaptations to exercise training, with an emphasis on the mechanisms underlying these adaptations.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5141 - Human Growth & Development (2 Credits)**

This course addresses functional movement across the life span in healthy individuals. Emphasis is on stages in life when the greatest changes in motor behavior occur and the factors that influence those changes. Developmental changes in all systems and their contributions to functional movement will be explored.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 5151 - Motor Control & Motor Learning (2 Credits)**

This course presents the foundation of motor learning and control as it applies to optimal movement across the lifespan. Emphasis is on variables related to task composition, the environment and augmented information that enhance practice of motor skills. These principles are applied to physical therapist practice.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 5161 - Psychosocial Aspects of Care I (1 Credit)**

This course is focused from the perspective of the practitioner as a person. General psycho-emotional issues and specific theories related to: practitioner self-awareness, emotions, spirituality, grief-loss-mourning, psych factors associated with the experience of pain will be presented. Introduction to motivational interviewing is included

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5162 - Psychosocial Aspects Care II (2 Credits)**

Builds on knowledge, skills and attitudes gained in DPTR 5161 with additional focus on general issues and theories related to: changing behaviors, depression and anxiety, sexuality in rehabilitation, suicidal behavior, addiction in society, stress management and conflict resolution.

Grading Basis: LTR

Typically Offered: FALL

**DPTR 5171 - Health Promotion and Wellness I (1 Credit)**

Disease prevention and health promotion are recognized as integral aspects of physical therapist practice. In this first of two courses, students will use current models of behavior change, disability, and population health to understand the multiple determinants of health and wellness. Using oneself as the client, students will complete an individual health assessment, identify areas of growth, and generate a plan to promote their own health and wellness.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 5201 - Examination & Evaluation I (2 Credits)**

This course introduces the physical therapist's examination of the patient. This course will familiarize the student with the ICF framework and emphasize foundational examination skills including, manual muscle testing, goniometry and surface palpation.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 5202 - Examination and Evaluation II (2 Credits)**

This course emphasizes developing a process of hypothesis generation to direct clinical decision making during the examination part of the patient encounter. Skill development includes examination techniques of the integumentary, cardiovascular/pulmonary, neuromuscular, and musculoskeletal systems, including analysis of human movement.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 5211 - Foundations of Intervention I (2 Credits)**

This course introduces basic examination and intervention principles and techniques for posture and positioning, basic mobility with and without assistive devices, soft tissue mobilization, and physical agents, for improving functional mobility and for managing a variety of clinical populations.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 5212 - Foundations of Intervention II (2 Credits)**

Further introduction and advancement of foundational intervention principles and techniques including soft tissue mobilization, physical agents and electrotherapeutic modalities. Emphasis is on the application of exercise as an intervention for improving functional mobility and for managing a variety of clinical problems.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 5301 - Medical Conditions I (4 Credits)**

This course highlights the physical therapy management of patients with cardiovascular, pulmonary and metabolic disorders across the lifespan and healthcare settings. Physiology, medical management, diagnostic testing, clinical decision making and medical screening are covered with implications for physical therapist's practice.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5401 - Musculoskeletal Conditions I (4 Credits)**

This course introduces the examination, clinical decision-making and physical therapy management of musculoskeletal disorders across the life span, focusing on the lower quarter from the pelvis to the foot and ankle. Medical management, including radiology and pharmacology, are covered with implications for physical therapy interventions.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5501 - Neuromuscular I (3 Credits)**

Clinical decision-making frameworks are discussed for management of people with neurologic conditions with an emphasis on stroke and cerebral palsy. Clinical skills are taught for examination, evaluation and intervention across the lifespan and across settings. Evidence based practice and manual guidance are emphasized for intervention.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5621 - Evidence Based Practice (3 Credits)**

This course covers and applies concepts and steps of evidence-based practice to a variety of clinical settings, including: searching; selection; and appraisal of the literature. Emphasis is on searching the literature to answer clinical questions regarding physical therapy tests and measures, interventions, and patient prognosis.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 5631 - Clinical Reasoning I (1 Credit)**

This introductory course teaches students to integrate current evidence with critical reasoning in the ICF framework to facilitate patient-centered decision making in the examination, prognosis, and intervention for elementary patient cases across a variety of clinical practice settings.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5711 - Professional Development I (2 Credits)**

First in a series of courses on professional development. Students will explore self and begin the journey of becoming a physical therapist, including personal and professional values and professional communication/ behaviors. Concepts of continuum of care and population health will be introduced. Prerequisite: DPT Program students only.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 5731 - Healthcare Delivery I (1 Credit)**

The course will include a basic overview of healthcare systems and payment systems. Concepts relevant to supervision and applicable laws to physical therapist practice will be reviewed, and patient quality improvement and safety will be introduced.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 5841 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: P/F

Typically Offered: Summer

**DPTR 5842 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: P/F

Typically Offered: Fall

**DPTR 5843 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: P/F

Typically Offered: Spring

**DPTR 5901 - Integrated Clin Experience I (1 Credit)**

Short-term clinical education experience providing initial foundation and understanding of clinical practice with emphasis on integration of didactic and clinical learning while working in a student team. Prerequisites: DPT Program students only

Grading Basis: P/F

Typically Offered: Fall

**DPTR 6002 - Clinical Anatomy II (3 Credits)**

This course follows a regional approach to gross anatomy of the systems of the abdomen and pelvis and supplemented by cross sectional anatomy radiographic and digital imaging. An in-depth study of upper and lower extremity arthrology through cadaver dissection is included.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 6102 - Movement Science II (2 Credits)**

Application of movement science in physical therapy practice with emphasis on human movement related to aging, clinical analysis, tests & measures, and prosthetics & orthotics. The prosthetic & orthotic unit is designed to build student competency in clinical management of individuals who require use of common prosthetic & orthotic devices

Grading Basis: LTR

Typically Offered: Fall

**DPTR 6302 - Medical Conditions II (2 Credits)**

This course continues the physical therapy management of patients with varied medical conditions (cancer; rheumatic) occurring across the lifespan and health care settings. Physiology, medical management, diagnostic testing, clinical decision making and medical screening are covered with implications for physical therapist's practice.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 6303 - Medical Conditions III (3 Credits)**

This course continues the physical therapist management of medical conditions. Integumentary, endocrine, transplant, geriatric and ICU care are emphasized. Physical therapist's clinical decision-making and differential diagnosis are advanced while integrating physiology, medical and pharmacological management and diagnostic testing.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 6402 - Musculoskeletal Conditions II (2 Credits)**

This course continues examination, clinical decision-making and physical therapy management of people with musculoskeletal disorders across the life span, focusing on the cervicothoracic spine and temporomandibular disorders. Medical management, radiology and pharmacology are covered with implications for physical therapy interventions.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 6403 - Musculoskeletal Conditions III (2 Credits)**

This continues the examination, clinical decision-making and physical therapy management of musculoskeletal disorders across the life span, focusing on the upper extremity from the shoulder to the wrist and hand. Medical management, including radiology and pharmacology, are covered with implications for physical therapy interventions.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 6404 (TBD per new course) - Musculoskeletal Conditions IV (2 Credits)**

This course addresses the examination, clinical decision-making and physical therapy management of patient populations with musculoskeletal conditions who have special considerations across the lifespan, including pediatric, adolescent and geriatric patients, working adults, patients with pelvic health conditions, and patients requiring inpatient care.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 6502 - Neuromuscular Conditions II (2 Credits)**

This course includes an in-depth exploration of people with neurodegenerative conditions across the lifespan, specifically as related to tests and measures, prognoses, and intervention approaches. Radiology and pharmacology as related to neuropathy are included.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 6503 - Neuromuscular Conditions III (4 Credits)**

This course progresses and synthesizes clinical skills, decision-making and reasoning (including use of frameworks and evidence) as applied the physical therapy management for people with neurological conditions across the lifespan. The physical therapist's role across settings and the continuum of care will be explored.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 6632 - Clinical Reasoning II (1 Credit)**

This advanced course teaches students to integrate current evidence with critical reasoning in the ICF framework to facilitate patient-centered decision making in the examination, prognosis, and for intervention for complex patient cases across a variety of clinical practice settings.

Grading Basis: LTR

Typically Offered: FALL

**DPTR 6633 - Clinical Reasoning III (2 Credits)**

This course requires students to integrate evidence, patient values, and clinical expertise with the ICF model of clinical decision making for actual patient cases. Students will identify and answer focused questions regarding examination, intervention, and prognosis through literature searches and online collegial discussion forums. Requirement: DPT Students only

Grading Basis: LTR

Typically Offered: Spring

**DPTR 6712 - Professional Development II (2 Credits)**

Explores professional roles and responsibilities related to the DPT. Extends beyond patient management to policy, advocacy, teamwork and practice settings. Overview of history of profession and our professional organization, current issues and trends. Looks at career options and post-professional opportunities.

Grading Basis: LTR

Typically Offered: FALL

**DPTR 6713 - Professional Development III (1 Credit)**

Introduction to management and leadership in healthcare, including leadership styles/characteristics and leadership development. Explores professional development opportunities following PT licensure including residency/fellowship, continuing education and expectations of a first position as a new professional. Requirement: DPT Students only

Grading Basis: LTR

Typically Offered: Spring

**DPTR 6732 - Healthcare Delivery II (3 Credits)**

Continued from HCD I. Focus on issues impacting the practice of physical therapy in diverse health care settings. Applicable laws will be revisited and expanded. Administration of physical therapist practice including management, marketing, human resources, risk management and financial management will be introduced.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 6851 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: P/F

Typically Offered: Summer

**DPTR 6852 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue content of their own choosing under guidance of a faculty mentor.

Grading Basis: LTR

Typically Offered: Fall

**DPTR 6853 - Independent Study (1-5 Credits)**

This course provides students with an opportunity to pursue content of their own choosing under guidance of a faculty mentor.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 6902 - Integrated Clinical Experience II (1 Credit)**

Two-week clinical education experience with emphasis on gaining breadth of experience, applying previously gained knowledge to a new clinical setting, engaging in advanced clinical reasoning, while continuing to practice psychomotor skills.

Grading Basis: P/F

Typically Offered: Fall

**DPTR 6931 - Clinical Education I (5 Credits)**

Eight-week, full time clinical experience providing students with the opportunity to take on responsibilities of the professional physical therapist, including beginning to manage a caseload and participating in a healthcare team. Requirements: DPT Students only.

Grading Basis: P/F

Typically Offered: Summer



**DPTR 6932 - Clinical Education II (6 Credits)**

This is a 10-week, full-time supervised clinical experience. Experience with emphasis on increasing independence in management of patients, becoming an integral member of the healthcare team and using self-assessment for professional development.

Grading Basis: P/F

Typically Offered: Spring

**DPTR 7112 - Applied Exercise Science (3 Credits)**

This course will focus on exercise prescription for complex patients with multi-system disease. Emphasis will be on clinical decision-making to tailor appropriate rehabilitation interventions to medically-complex patient populations.

Grading Basis: LTR

Typically Offered: Spring

**DPTR 7171 - Health Promotion and Wellness II (3 Credits)**

In this second of two courses on disease prevention and health promotion, students will apply fundamental concepts learned in HPWI to their clients and communities. Students will learn to work alongside their clients to identify and address individual, social and structural barriers to health. . They will also learn to work alongside community members to assess community health priorities, co-develop a health promotion program, and evaluate outcomes.

Grading Basis: LTR

Typically Offered: Summer

**DPTR 7212 - Elective (1 Credit)**

Various topics: provides students with the opportunity to explore selected topics, related to clinical practice, in depth or topics that are outside of the scope of the set curriculum. DPT students only.

Grading Basis: P/F

Repeatable. Max Credits: 1.

Typically Offered: Summer

**DPTR 7641 - Integrated Practice (3 Credits)**

A synthesis of curricular content applied to highly complex situations illustrative and inclusive of clinical practice across the lifespan. Through retrospective and prospective reasoning, students will analyze and articulate decisions based on reasoning, evidence, and contextual realities with colleagues across health care professions. Requirement: DPT Student Enrollment Only

Grading Basis: LTR

Typically Offered: Summer

**DPTR 7651 - Clinical Reasoning Capstone (4 Credits)**

Final course in the clinical reasoning sequence requires students to articulate and defend their clinical decision-making process in the exam, eval, management, and outcome assessment for a selected patient. Students will synthesize and integrate the evidence to inform decision making throughout each aspect of the patient mgmt process. Requirement: DPT Student Enrollment Only

Grading Basis: LTR

Typically Offered: Summer

**DPTR 7861 - Independent Study (1-3 Credits)**

Grading Basis: P/F

Typically Offered: Summer

**DPTR 7862 - Independent Study (1-5 Credits)**

Grading Basis: P/F

Typically Offered: Fall

**DPTR 7933 - Clinical Education III (10 Credits)**

This is a 16-week, full-time supervised clinical experience with emphasis on functioning as an entry-level clinician, and understanding the role of a Doctor of Physical Therapy within the complexities of the healthcare system through teamwork and collaboration. First phase of year-long internship.

Grading Basis: P/F

Typically Offered: Fall

## Curriculum Philosophy, Key Elements, Goals & Objectives

### *Curriculum Philosophy*

The curriculum prepares graduates to enter the doctoring profession of physical therapy for initial practice as generalist practitioners within primary physical therapy care. Primary physical therapy care is: 1) centered on the patient/client as well as family members and other caregivers, 2) culturally competent, 3) evidence-based and outcome oriented, 4) focused around movement for participation, and 5) implemented across the lifespan. The curriculum prepares graduates to promote, maintain, and improve the health of individuals, communities, and patient populations. To provide this care, the curriculum prepares graduates to partner with the patient/client/family/caregivers and to collaborate with other health care professionals. The curriculum also emphasizes the future roles of graduates as leaders in the profession.

### ***Knowledge: Clinical Decisions are Based on Critical Thinking, Clinical Reasoning, and Current Best Evidence***

Clinical decisions begin with a focus that guides the student to consciously adopt the patient/client and family/caregiver perspectives. Decisions are based on knowledge that includes the realms of foundational sciences, behavioral sciences, clinical sciences, and clinical practice. Decisions are shaped by an understanding of movement across the lifespan and perspectives of disablement and enablement. Decisions are patient-centered, guided by moral and ethical reasoning, and are based on current best evidence.

### ***Values and Attitudes: Professional and Ethical Values and Attitudes***

Professional and ethical values and attitudes result in behaviors that are consistent with the doctoring profession and the core values of physical therapist practice.

Ethical behaviors include the ability to reflect, address, and resolve competently the ethical issues confronted during clinical practice and research. These values and attitudes provide the basis for interacting with individuals and communities and are the stimulus for lifelong learning and contribution to the physical therapy profession.

### ***Skills: Professional Clinical Skills***

Professional clinical skills are needed for physical therapy screening, examination, evaluation, diagnosis, prognosis, plan of care, intervention, and assessment of outcomes. These skills reflect the integration of critical thinking, evidence-based practice, psychomotor skills, and interpersonal skills needed for the delivery of physical therapy care, including advocacy, social responsibility, and consultation.

The learning environment should facilitate the development of knowledge, values and attitudes and skills that will serve students during their educational experience and in addition will facilitate their development as self-directed and life-long learners. To this end, the body of knowledge is presented within a format that emphasizes active engagement in the classroom and laboratories, experiential learning, self-reflection, and self-assessment.

### ***Curricular Key Elements***

Throughout the curricular plan, key elements of trans-curricular processes and content are interwoven to prepare students to assume multifaceted roles in patient-centered care. These key elements are:

- Patient centered care
- Evidence based practice and clinical reasoning
- Movement for participation
- Teamwork and collaboration
- Quality improvement and safety

## Curriculum

### ***Oversight of the Curriculum***

The Physical Therapy Faculty as a whole is responsible for the overall design, implementation, evaluation, and ongoing reform of the curriculum that is consistent with previously established goals, objectives, and learning principles of the Physical Therapy Program.

The Curriculum Committee is responsible for curriculum development, ongoing curriculum assessment, and oversight to the entry-level curriculum. This committee is comprised of a faculty member who serves as the chair, the Director of Clinical Education, additional faculty members representative of each of the three major clinical tracks (medicine, neurological, and musculoskeletal physical therapy), other faculty at the discretion of the Program Director, and student members. The committee meets at least bi-monthly (but generally monthly) to address curricular issues and

courses within the PT Program, including workload, schedules, and content integration. This committee oversees all Commission on Accreditation in Physical Therapy Education (CAPTE) criteria related to delivery of content within a DPT program.

## **Semester Schedule of Classes and Registration**

A schedule of class meeting dates and times will be provided by the PT Program to all students approximately six weeks before the beginning of each semester. While this schedule is intended to be accurate and complete, there are occasionally changes that must be made as the semester progresses. Any modifications to the schedule of class meetings will be posted on the Outlook Calendar. Every effort will be made to avoid changes in the length of the semester, examination times, or scheduled university holidays or breaks once students have received the schedule.

### ***Course Registration***

The Office of Admissions and Records registers students online under the direction of the Physical Therapy Program. The Program provides details regarding course registration. All students must complete the prerequisites before they can be registered for any course. Prerequisites are listed in the course catalog. If a student needs to drop or add a course, s/he is responsible to communicate with the Program prior to the deadline, which is listed in the Academic Year Calendar on the program website. The student must follow the process from the Office of Admissions and Records, which may include completion of a drop/add form. The student is responsible for all tuition and fees, including any late drop/add fees.

## **Course and Course Coordinator Evaluations**

### ***Summative Evaluations***

Students evaluate each course and each instructor at the end of every semester using a web-based on-line evaluation system. The Office of Technology Support Services (TSS) administers the campus-wide evaluation system, and student confidentiality is strictly maintained. Student names are confidential and are not shared with the Program Director or Course Coordinator. The information obtained from the feedback is used by the Course Coordinator and Program Director to guide changes in a particular course and teaching methodology. Evaluation results are also used to guide curricular decisions and faculty promotions.

It is a program expectation that students complete end of semester course evaluations before attending lectures and labs in the subsequent semester.

### ***Formative Evaluations***

Individual faculty members may informally ask students for feedback at any time while a course is in progress, in order to assist the faculty member in evaluating course effectiveness and making revisions if needed.

## **Credit Program Requirements**

All Physical Therapy Program degree core courses and electives are listed on the PT Program website and in Canvas.

## **Non-Credit Program Requirements**

All students are required to complete several program requirements including:

- 1) 2 modules: HIPAA (Health Insurance Portability and Accountability Act), Academic Integrity
- 2) 4 Humanities sessions
- 3) 2 Center for Advancing Professional Excellence (CAPE) teaching/assessment activities
- 4) 3 phases of Interprofessional Education (IPE) 2 didactic, 1 in CAPE

Completion means attending designated sessions, completion of any assigned work, and/or attainment of a certain level performance designated by the session coordinator.

### ***HIPAA: Health Insurance Portability and Accountability Act***

A federal law, known as "HIPAA" (Health Insurance Portability and Accountability Act of 1996), requires that each institution establish and implement policies and procedures to ensure patient confidentiality. The HIPAA Privacy Rule regulates the use and disbursement of individually identifiable health information and gives individuals the right to determine and restrict access to their health information. Compliance with HIPAA's privacy regulations has been required as of April 14, 2003. There are substantial penalties, both civil and criminal, for non-compliance.

To learn more about HIPAA at the University of Colorado, go to <http://www.ucdenver.edu/research/ORC/HIPAA/Pages/default.aspx> or contact the CU HIPAA Compliance Office at (303) 724-0983.

Students must complete a HIPAA module, accessed in Canvas, prior to the first week of Integrated Clinical Experience (ICE) I.

### ***Medical Terminology***

Health care professionals need a working knowledge of medical terminology for effective communication and optimal patient care. Students are responsible for learning medical terminology throughout the Doctoral of Physical Therapy Curriculum. Students should self-assess their knowledge of medical terminology and use additional resources to improve their understanding of medical terminology.

### ***Academic Integrity***

All matriculated students must complete four modules related to academic integrity. These modules include: 1) Plagiarism, 2) Cheating, 3) Other forms of academic dishonesty, and 4) Academic Integrity.

### ***Humanities***

Each humanities session exposes the student to stories of illness, disability, and accident, as a way to provide an exploration and analysis using imaginative materials such as film, poetry and fiction that represent the vagaries of the human condition across the lifespan.

### ***Center for Advancing Professional Excellence (CAPE)***

CAPE is a full-service assessment and education center specializing in the use of standardized patients and simulators. A Standardized Patient (SP) is an individual who is carefully trained to portray or simulate all aspects of a real patient as part of a case scenario in order to provide an opportunity for a student to learn or be evaluated on their clinical skills. Simulations involve the use of mannequins who are complex computerized machines that accurately depict a human experiencing various kinds of events from heart palpitations to distressed breathing, to urination, vomiting, and bleeding. There are three CAPE experiences throughout the curriculum: two assessment encounters with standardized patients and one teaching encounter with a mannequin.

### ***Interprofessional Education (IPE)***

Each student will be assigned to a team of students, which may include some or all of the following disciplines: Doctor of Physical Therapy (DPT), Physician Assistant (PA), Medicine (MD), Dentistry (DDM), Pharmacy (PharmD), Nursing (RN). The interprofessional teams will meet in the classroom on several occasions in the curriculum including a) half-day orientation in year 1, fall semester; b) seven, two-hour sessions in year 1, spring semester; eight, two-hour sessions in year 2, fall semester. In year two and three, students will meet as an ad hoc team in the Center for Advancing Professional Excellence (CAPE) for one half day and will be part of a team project during their final clinical education experiences in the program.

## **Promotion and Graduation Processes**

### ***Student Promotions Committee (SPC)***

The Student Promotions Committee (SPC) is charged by the Director of the Physical Therapy Program (Director) and the faculty with upholding the standards of the Physical Therapy Program and the profession. The Student Promotions Committee is composed of: Chairperson, Director of Clinical Education and appointed faculty members. SPC meetings involving individual students may include the addition of the student's faculty advisor, and a Course Coordinator if deemed appropriate.

The deliberations of the Student Promotions Committee are intended to be positive in approach and intended to be helpful to the student. The SPC recognizes that each student, despite adversity, must be able to meet minimum academic and clinical performance as well as, professionalism standards.

When evaluating student performance, the SPC takes into account such matters as extent of knowledge, ability to organize and logically present information, understanding and judgment. Also, when evaluating student performance, the SPC takes into account such qualities as cognitive ability, communication skills, behavioral and social skills, humanistic traits, physical ability, and professional behavior. All of these personal qualities are essential to the practice of physical therapy.

The Student Promotions Committee faculty members provide recommendations to the Director of the Physical Therapy Program regarding: promotion, probation, remediation, withdrawal, leave of absence (LOA) or dismissal from the Program (see section under "Process of tracking academic, clinical, and professional behavior and Process of Disciplinary Action").

## **Physical Therapy Program Minimum Grade Standards and Remediation**

### ***Course Completion and Program Progression***

Students must successfully complete and pass all required courses and maintain a minimum cumulative GPA of 3.0 to be in good academic standing and to progress through the program. Students complete all coursework including clinical education in sequence. Students must successfully pass all required courses and clinical education experiences to graduate from the Program. Additionally, students must meet standards of professional behavior throughout the Program (refer to section and Appendix on Professional Behaviors) and complete all additional program requirements.

### ***Course Grade***

The minimum satisfactory grade in any course is a C (73-76%). Students must receive a satisfactory grade in each course and must complete course requirements as outlined in the course syllabus. If the student receives an unsatisfactory grade (below 73% = course failure) in a course, the student will meet with the course coordinator and their faculty advisor. The Student Promotions Committee (SPC) will be notified, and the student will meet with one or more members of the committee. The SPC will make one of the following recommendations to the PT Program Director: (1) dismissal

from the Program, (2) remediation of course content followed by successful re-examination that would allow the student to continue to progress in the Program. If additional costs are associated with remediation of a course, based on the extent of the remediation required, these costs become the responsibility of the student. When remediation and re-examination must be completed for continuation in the next consecutive semester, this process may need to occur during a scheduled break and must be completed. The timeframe will be determined in conjunction with the SPC and the course coordinator. If a student fails a second course at any time while in the PT Program, the student will be dismissed from the Program, irrespective of the cumulative GPA.

### ***Practical Examination Assessments***

Students must pass the practical examination in any course with a practical exam requirement in order to successfully pass the course. A student who does not pass a practical examination will have the opportunity to repeat the examination one time. If the student passes the practical examination on the second try, the lowest passing grade is given for the practical examination (i.e., 73%). If the student fails to pass the practical examination on the second try, the student will fail the course and the policy for course grades will apply.

### ***Policy Regarding Requests to Change Course Assessment Time***

Course assessments, including any written/computer examinations, competency-based assessments (comps) and practical lab exams, are given only at the assigned and scheduled times. Assessment times are not altered, and any student arriving late will only have the remainder of the allotted time to complete the assessment. If the assessment involves classmates as a comp or practical partner, the course instructor may reassign late students at their discretion. Any request to modify an assessment schedule must be approved ahead of the scheduled date and time through a formal written request to the Absences Committee.

## **Minimum Grade Point Average (GPA) Requirements**

### ***First Semester (Summer 1)***

At the end of the first semester (Summer 1), students must have a semester GPA of a 2.75 or above to progress to the second semester in the program. A student with a first semester GPA between 2.75-2.99 will be placed on probation (see below) and referred to the SPC. A student with a first semester GPA below 2.75 will be referred to the SPC and dismissal will be recommended. The final decision to dismiss a student from the program is made by the Program Director. Refer to section on Dismissal from the Program below.

### ***Second Semester (Fall 1)***

In the second semester (Fall 1), a student must achieve BOTH a semester and a cumulative GPA of 3.0 or above to remain in good academic standing. A student with a semester or cumulative GPA below 3.0 in Fall 1 will be placed on probation (see Probationary Status below) and referred to the SPC. A student who was on probation entering Fall 1 must exhibit a positive trajectory towards a 3.0 cumulative GPA at the end of Fall 1 semester. If a student fails to exhibit a positive trajectory at the end of Fall 1 and is unable to raise their semester and cumulative GPA to a 3.0, the SPC will make a recommendation to the Program Director to dismiss the student from the Program. The final decision is made by the Program Director. Refer to section on Dismissal from the Program below.

### ***All Subsequent Semesters (Spring I and Beyond)***

In all subsequent semesters (Spring I and beyond), a student must achieve BOTH a semester and a cumulative GPA of 3.0 or above. A student with a semester or cumulative GPA below 3.0 will be placed on probation (see Probationary Status below) and referred to the SPC. Additional criteria for receiving passing grades on practical exams and in courses also apply.

### ***Clinical Education***

If a student does not receive a passing grade for a clinical education course, the Director of Clinical Education (DCE) will notify the Chair of the Student Promotions Committee. The SPC will make a recommendation to the PT Program Director of either: (1) dismissal from the Program or (2) remediation followed by additional clinical education with possible delayed graduation. The student is responsible for any additional costs associated with remediation, and/or additional clinical education placement. The final decision is made by the PT Program Director and the student has the right to appeal. This includes students who complete a clinical education experience, but do not meet all of the Program's criteria for successful completion of the course.

Additional information about clinical education policies can be found in the Student Clinical Education Handbook.

### ***Calculation of Grade Point Average***

The University of Colorado has had a uniform grading policy since 1974: <https://www.cu.edu/ope/aps/1025>. The Physical Therapy Program calculates GPA as follows:

### ***Posting of Grades***

The Family Policy Compliance Office within the US Department of Education has determined that using any part of the Social Security number, or any other institutionally assigned student identifier, as well as posting a list of student grades alphabetically, is in violation of the Family Educational



Rights and Privacy Act (FERPA). Therefore, the Physical Therapy Program faculty does not post any grades using any of these systems. Instead, the faculty uses the Student ID that is issued to the student during the application season.

<https://portal.cusys.edu/UCDAccessFedAuthLogin.html>

## Grade Appeals Policy

### *Grade Appeals Policy*

The Physical Therapy Program is committed to the ideal of academic freedom and so recognizes that the assignment of grades is a faculty responsibility. It is recognized that students have the right to appeal a final grade and the Physical Therapy Program has a responsibility to respond to such an appeal in a judicious and timely manner.

### *Criteria for Appealing a Grade*

A student may appeal a final course grade on the grounds that the methods or criteria for evaluating academic or clinical performance, as stated in the syllabus or clinical manual, were not applied in determining the final grade.

### *Procedures*

Any student wishing to appeal a grade must initiate the process within 30 days of receiving the disputed grade. Students are encouraged to discuss the appeal informally with the Course Coordinator before submitting a formal appeal.

In the event that a student wishes to initiate a formal appeal, an appeal letter should be sent to the Course Coordinator and the Director of the Physical Therapy Program, stating the reason(s) for the appeal and specifying the requested change.

The Course Coordinator will meet with the student to discuss the appeal within 15 business days of receipt of the appeals letter. Before the meeting, the student should provide the Course Coordinator with copies of all materials pertinent to the appeal, such as the course syllabus, papers, tests, write-ups, etc.

If, after the meeting, the student and consulting faculty responsible for assigning the grade determine a change of grade is warranted, then the Course Coordinator will change the grade. If the Course Coordinator determines that a change of grade is not warranted, s/he must notify the student within 5 business days. The student may then appeal the decision of the Course Coordinator to the Director of the Physical Therapy Program. The Director may meet with the student and Course Coordinator before making the ruling. The decision of the Director of the Physical Therapy Program is final.

## Professionalism and Academic Honor Conduct Code

### *Relationship of Honor and Conduct Code to Local, State, and Federal Laws*

The University adheres to all appropriate local, state, and federal laws, and cooperates with law officials in all matters. Any alleged violation of local, state, or federal laws will be referred to the appropriate law enforcement agency and such laws have precedence over the provisions of this policy. The University of Colorado does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status in admission and access to, and treatment and employment in, its educational programs and activities. The University takes action to increase ethnic, cultural, and gender diversity, to employ qualified individuals with disability and to provide equal opportunity to all students and employees. The CU Physical Therapy Program upholds an Equal Opportunity Practice. If any student or employee of the University has concerns about discrimination or to report discrimination, they are encouraged to utilize the resources provided to ensure due process, as is described in the Nondiscrimination Procedures of the University.

<https://www.cu.edu/regents/laws-and-policies/regent-laws/article-10-nondiscrimination>

## Professionalism

Professional behavior is required of CU Physical Therapy students throughout the physical therapy curriculum. Professionalism is guided by and assessed through the APTA Core Values and Professional Behaviors of the 21st Century. The expectation for professional behavior increases as the physical therapy student progresses through the curriculum and as s/he/they moves into his/her/their final clinical education experiences and assumes responsibility for patient care. Students are expected to attain entry-level professional behaviors at the time of graduation as described in the Professional Behaviors of the 21st Century.

As future health professionals, students should adhere to the highest standards of professionalism. In addition to the PT Program policies and procedures, the School of Medicine and the Anschutz Medical Campus have additional expectations for professionalism. See Drug and Alcohol Policy and PT Program Procedures for Ensuring A Safe Environment below.

Professional behavior may be considered when grades are assigned by Course Coordinators in all program courses, although students may be held accountable (including probation or dismissal) for lapses in professional behavior, even if such unprofessional behavior did not affect the student's grade.

## Academic Honor Conduct Code

Education at the University of Colorado is conducted under the honor system. All students who have entered health professional programs are expected to demonstrate the qualities of honesty and integrity, and each student should apply these principles to his/her academic, clinical and subsequent professional career. The Physical Therapy Program expects all physical therapy students to conduct themselves according to the Academic Honor Conduct Code.

The Honor Code is both a philosophy and a standard that requires physical therapy students and their peers to hold each other accountable for their actions. Its aims are to instill and to maintain the highest standards of academic and behavioral integrity amongst physical therapy students. Four modules related to academic integrity must be completed by all matriculated students. These modules include: 1) Plagiarism, 2) Cheating, 3) Other forms of academic dishonesty, and 4) Academic Integrity.

A copy of the Honor Code is signed by each physical therapy student at his/her matriculation as an indication of acceptance and understanding of his/her responsibilities. In addition to complying with the Honor Code, physical therapy students are expected not to share instructional materials provided to them by the Physical Therapy Program outside of the Program or between class cohorts without the specific permission of the instructor. These materials include, but are not limited to lab recordings, content posted on Canvas such as lectures, recordings of Standardized Patient encounters, case studies, etc. The Honor Code can be referenced at the back of the Student Handbook.

If a student is suspected of an Honor Code violation, the first and most important step is for the observer to meet face to face with the suspected student. This gives the student an opportunity to explain his/her behavior. If the explanation is adequate to support that there was no violation of the Honor Code, no other action needs to take place and the matter is concluded. If the explanation is not satisfactory, then letting the student know that a report will be made to the Class Honor Code Student Representative and/or the Student Promotions Committee (SPC) is in order. The meeting should be performed as soon as possible and the SPC should be notified soon thereafter (no later than two weeks). The process of meeting face to face with a student on difficult and sensitive matters requires a skillful approach, a skill that is not typically comfortable or proficient. Therefore, a student reporting academic dishonesty may intentionally choose to confer with a physical therapy faculty member or other identified mentor within the University system, in order to explore a dialogue that reflects thoughtfulness, fairness and represents the core values of our profession.

### ***Policy Regarding Assignments and Assessments***

Faculty use a variety of learning assessment formats including quizzes, for course assignments ranging from situations in which students work entirely on their own to situations in which students work collaboratively in pairs or in small groups, with a range of options in between. Students operate under the Academic Honor Conduct Code in all courses and for all assignments. Students should carefully review course expectations with regard to each specific assignment/assessment and the work requirements.

The following guidelines help to clarify expectations related to assignments and assessments:

1. "work entirely on your own":

The student completes the assignment without consultation or discussion with any classmates. The student may be permitted to refer to texts or other resources as directed by the Course Coordinator(s).

2. "collaborate with colleagues but complete the product independently": Students may work in pairs or groups while gathering and processing information, but each student must complete the actual assignment independently, in their own words.

3. "work in groups (of 2 or more students) and turn in a single product":

Students work collaboratively together on the entire project and each assigned group must turn in a single, unique product (paper) or participate in a single presentation. Each student in the small group receives the same grade.

Students are responsible for paying close attention to the guidelines given by the Course Coordinator(s). In the event of uncertainty, students should err on the side of working independently and ask for clarification.

## Policies Regarding Absences and Missing Classes

### ***Policies Regarding Absences***

Students are expected to attend all classes (including clinical education) indicated as mandatory on the class schedule. Assessments are given only at the scheduled time.

### ***Policy Regarding Missing Classes***

Failure to attend a mandatory session, without approval from the Course Coordinator, will be considered a violation of professionalism and may have grading consequences for the course in which the session was missed.

### ***Committee for Student Absence***

The Committee for Student Absence addresses requests for assessments or other mandatory class absences. The Committee for Student Absence is comprised of four faculty members including a committee chair and a representative from the Clinical Education team and meets on an as-needed

basis to process student requests. The Committee for Student Absence will typically respond to the student requests within two weeks of receipt of the request (see below and see Appendices for form). Requests should be submitted at least 6 weeks in advance of the anticipated absence.

## **Anticipated and Unanticipated Life Events**

### **Anticipated Live Events**

#### ***Professional Opportunities***

It is recognized that unique professional opportunities (e.g., presentation at a national conference) arise for which students may request an exception to this policy. Exceptions to this policy for professional opportunities may be granted according to the procedure below.

#### ***Personal Events***

It is recognized that in rare circumstances, personal events (e.g., weddings, family reunions) may arise for which students may request an exception to this policy. Exceptions to this policy for personal events may be granted according to the procedure below.

#### ***Jury Duty***

If a student is called upon to serve as a juror, it is the student's responsibility to make reasoned decisions regarding whether the timing of the jury duty conflicts with academic or professional obligations (clinical education experiences, exams, comps, etc.). If a conflict exists, then it is the student's responsibility to request a change of date through the court. The student must be conscientious in requesting alternate dates in order to ensure that the new dates are not academically/professionally conflicting. The student is responsible to communicate with the Course Coordinator of each class that will be missed and make arrangements to make up missed assignments, according to the policies below.

### **Unanticipated Life Events**

It is recognized that unanticipated life events of an emergent nature do occur. In the event of unavoidable and personal or serious family issues (e.g., family illness or death) the student should contact both the Program Director and the Course Coordinator. If the student is unable to reach either person, the student should leave them a voice message and email. As appropriate, the Program Director will notify the faculty as a whole that the student will be absent over a certain time period. With consent from the student, the Program Director will inform the faculty of the reason for absence. Upon the student's return, arrangements will be made to make up missed time and content. Students who incur a serious injury or hospitalization that limits their ability to participate in curricular activities should provide written communication from a treating physician or other healthcare provider detailing restrictions and notification of clearance prior to returning to class/laboratory activity.

#### ***Procedure***

1. Student shall complete and email the Request for Absences due to Personal Circumstances or Professional Opportunities form (not the student leave of absence form) and submit it to The Student Absences Committee Chair in advance of making any plans (e.g., purchasing plane tickets). It is highly recommended that the student completes a form immediately upon determining that he/she may miss a scheduled mandatory event (including assessments). In addition, it is recommended that the student attach a professionally written letter of rationale to the short form. Students are asked to submit their request a minimum of six weeks in advance of the event in order for the committee to meet and complete the process.
2. In order to come to an informed decision, the Committee will review the request, consult with the Course Coordinator and may decide to meet with the student.
3. A decision will be made by the Committee and the student will be notified of the decision, which is final.

If the decision of the Committee is not followed, the student will be referred to the Student Promotions Committee.

Please see the Clinical Education Manual for the most up to date information on specific ClinEd policies.

## **Policy Regarding Requests to Change Examination Time or Absence from a Mandatory Class**

Program policy is to give assessments (written, competency, practical, and standardized patient assessments or mandatory presentations) only at the scheduled time and attend all classes that are indicated as mandatory on the class schedule.

## **Clinical Education Course Absences**

Attendance in clinical education (CE) falls under mandatory coursework and is an essential part of the DPT curriculum. Students should plan to be in attendance on all required days and recognize that making up time in clinic can be challenging for several reasons, including time-constraints in the curriculum, burden on the site and clinical instructor (CI), and variable clinic schedules. Please refer to the "Time in Clinic Policy" located in the Clinical Education Manual and posted on canvas for the complete policy and procedures regarding absences from clinic.

#### ***Committee for Student Absences***

The Committee for Student Absences will address requests for absence from a clinical education experience. The Committee for Student Absence is comprised of three faculty members including a committee chair and meets on an as-needed basis to process student requests. The Committee for Student Absence will typically respond to the student requests within two weeks of receipt of the request (see below).

### **Anticipated Life Events**

#### ***Professional Opportunities***

Opportunities for professional development may arise while you are in clinic. While the Program supports exposure to professional development opportunities, these events should not distract from clinic learning experiences. Exceptions to this policy for professional opportunities may be granted according to the procedure below. If approved, students will be expected to make up any time missed for professional development. Students are welcome to attend any professional development activities that occur outside of their normal clinic hours.

#### ***Personal Events***

The Program understands that important personal and milestone family events may occur during clinical education rotations. Attendance during clinical education is considered mandatory but we recognize that in rare circumstances students may request an exception to this policy. Exceptions to this policy for professional opportunities may be granted according to the procedure below. Students should not assume that requests for personal time off will be approved, so please do not make any formal plans (e.g. purchase plane tickets) until time off has been formally approved. IF approved, students will be expected to make up this time.

#### ***Unanticipated Life Events***

It is recognized that unanticipated life events of an emergent nature do occur. In the event of unavoidable and personal or serious family issues (e.g., family illness or death) during clinical education, the student should contact their Clinical Instructor and Clinical Education Faculty Advisor. If the student is unable to reach these individuals, the student should leave them a voice message and an email message. As appropriate Director of Clinical Education will notify the faculty as a whole that the student will be absent over a certain time period. With consent from the student, the Director of Clinical Education will inform the faculty of the reason for absence. Upon the student's return, arrangements will be made to assist the student to make up missed time and content. Students who incur a serious injury or hospitalization that limits his/her ability to participate in curricular activities should provide written communication from a physician detailing restrictions and notification of clearance prior to returning to the clinical education site.

#### ***Procedure***

Do NOT contact your CI with requests for time off and do NOT make travel or activity arrangements until all steps below are completed. Any absence request that is approved is provisional, pending student performance during the clinical experience.

1. Student will complete the "Request for Absences due to Personal Circumstances or Professional Opportunities (Clinical Education)" form and submit to the Student Absences Committee Chair in advance of making any plans (e.g. purchasing plane tickets). It is highly recommended that the student completes the form immediately upon determining that they may miss clinic time. Students are asked to submit a request a minimum of 6 weeks in advance of an event in order for the committee to meet and complete the process.
2. The Chair will respond to the student's request acknowledging that the request has been received and is being reviewed.
3. In order to come to an informed decision, the Student Absences Committee will review the request and consult with the Clinical Education faculty advisor. If the Student Absences Committee and the CE faculty advisor agree that the time off request meets the criteria outlined in "Time in Clinic/Attendance Policy", the approval process will proceed to the following step.
4. The CE faculty advisor will communicate directly with the CI and/or SCCE to discuss the absence request and to confirm that time off can be approved and/or required time can be made-up. The CE faculty advisor, CI/SCCE, and student will develop a plan regarding make-up time as needed. Please remember, any absence request that is approved is provisional, pending student performance during the clinical experience. Students should understand that plans may need to be modified or canceled if the CI/SCCE and CE faculty advisor feels that missed clinic time will impact successful completion of the clinical experience.
5. The Student Absences Committee will come to a decision, which is final. The decision will be communicated to the student via electronic or written communication.

If a denial decision from the Student Absences Committee is not followed, the student will be referred to the Student Promotions Committee.

### **Process of Tracking Academic, Professional, and Clinical Behavior and Process of Disciplinary Action**

A Student Tracking System is used to observe trends per student throughout their time in the PT Program. Academic, professional, and clinical behavior, achievements and/or concerns are submitted by faculty and discussed confidentially by faculty during the bi-monthly faculty meetings. These are culminated into a confidential document along with the GPA of each student.

#### ***Academic, Clinical, and Professional Issues***

When students' academic, clinical, or professional issues arise, the issue is recorded as stated above on a confidential student tracking form. The issue is first attempted to be resolved informally between the faculty member and the student. If the issue cannot be resolved informally, the issue is then brought to the course coordinator and/or faculty advisor. If not resolved the issue may be brought to the faculty during a faculty meeting for discussion. Faculty may refer the issue to the Student Promotions Committee (SPC). The SPC will review and evaluate the issue and make a recommendation for action to the Program Director. Recommendations may include referral for resources, remediation, probation, or dismissal from the program. The Committee does not impose withdrawal from the Program but determines students' academic, clinical, and professional status at the time of withdrawal. The student is responsible to complete the appropriate process as determined by the Program Director.

### ***Probation***

Probation may be imposed for unsatisfactory progress in academic or clinical education or lapses in professional behavior. At the end of each semester, a degree audit (review of all grades and a calculated GPA) is conducted for each student in the PT Program. This audit occurs within two weeks after the submission of grades. Any student who does not pass a course or meet minimum GPA requirements will be informed by email with an attached formal letter from the Chairperson of the SPC or the Program Director no later than the end of the first week of the subsequent semester or within three weeks of the end of the semester. A copy of the letter will be placed in the student's file and submitted to the Program Director and the student's faculty advisor.

Students on probation must achieve a semester GPA of 3.0 or greater in subsequent semesters and demonstrate a positive trajectory towards improvement of their cumulative GPA if it is below 3.0. Students must reach a cumulative 3.0 GPA by the end of the second of two semesters on probation. At this point the student will come off probation and continue in good academic standing. Failure to achieve a semester GPA of 3.0 or greater and demonstrate this trajectory of improvement to reach the minimum cumulative GPA of 3.0 after two semesters will result in dismissal. Probationary status is only allowed one time during progression through the program. Probationary status is considered when determining whether or not a student may proceed to clinical education. Students may not progress to the terminal clinical experience if on probation.

Students on probation are subject to immediate dismissal if they incur additional academic, clinical, or professionalism deficiencies while on probation.

### ***Remedial Action***

Any student on probation, as well as students not on probation but experiencing challenges in academic, clinical or professional behaviors may be presented to the faculty by an individual Course Coordinator and/or may be referred to the SPC. As such, the SPC may recommend remedial action, including but not limited to additional clinical experiences; completing additional academic or clinical assignments; designing and implementing a professional behavior plan of action; or remediation at the Center for Academic and Professional Excellence (CAPE), which would be at the student's expense. Remedial action may also include a mental health assessment, substance use assessment or consideration of other reasons for unsatisfactory performance. Any additional evaluations or appointments are the responsibility of the student. The Student Promotions Committee may also recommend to the Director of the Program: 1) placing the student on probation separately or in combination with a remedial action or 2) dismissal from the Program. The Director of the Program will make the final decision with regards to any of the above recommendations.

A student who does not successfully complete the remedial action or does not meet the conditions of his/her probation may be subject to dismissal from the Program.

### ***Withdrawal from the Program/University***

A student may withdraw from the Physical Therapy Program at any time. A student who decides to withdraw from the Program must report this decision to the Director of the Program. A meeting will be arranged to ensure that the student is satisfactorily informed and is making the decision to withdraw with adequate information. A student who withdraws from the Program must complete the withdrawal form and have the form signed by the Director of the Physical Therapy Program.

[http://www.ucdenver.edu/anschutz/studentresources/Registrar/Documents/FormStorage/withdrawal%20form\\_official%20university.pdf](http://www.ucdenver.edu/anschutz/studentresources/Registrar/Documents/FormStorage/withdrawal%20form_official%20university.pdf)

Failure to withdraw without completing the appropriate forms and processes may result in unresolved financial aid or account issues, failing grades on the transcript, or the inability to earn a degree from the University in the future.

A student's academic or clinical status at the time of withdrawal will be determined by the Student Promotions Committee and the Director of the Program. Withdrawal will be characterized as "withdrawal in good standing" (GPA of 3.0 or above, no unsatisfactory grades, and no professional behavior deficiencies) or "withdrawal not in good standing" (GPA below 3.0, unsatisfactory grades, or professional behavior deficiencies).

### ***Dismissal from the Program***

A student may be dismissed from the Program for poor performance in meeting academic or clinical education requirements, or in professional behavior. This includes failure to meet the requirements of probation. Specific details related to academic, clinical and professional expectations have been described in earlier sections of this Handbook. In the event of a pending program dismissal, the student will be notified as soon as possible. The Program Director receives the recommendation from the SPC and makes the final decision. The student may appeal this decision to the Senior Associate Dean for Education in the School of Medicine (see process of appeal below).



**Appeal Process**

The first step in the appeal process is for the student to notify the Chair of the SPC in writing of their desire to appeal and the reason for the appeal. The Chair of the SPC will initiate contact with the Senior Associate Dean for Education in the School of Medicine to begin the process. The student will be offered the assistance of a Student Advocate from the School of Medicine to assist with the appeal. Appeals will progress in a timely manner without undue delay from the Program or the student.

After notifying the Chair of the SPC, the student must file an official appeal in writing, addressed to the Senior Associate Dean of Education in the School of Medicine. This written document must be sent by email or hand-delivered to the Office of the Senior Associate Dean of Education in the School of Medicine. The appeal letter must include all supporting facts and arguments and must be submitted no later than seven (7) calendar days after the notification of dismissal has been delivered verbally or in writing to the student. The appeal letter must include the following:

1. It must cite the basis of the appeal; and
2. It must provide sufficient and detailed information to support the student's appeal.

Failure to meet either of these conditions shall be sufficient cause to deny an appeal, in which case the original dismissal letter from the Physical Therapy Program Director shall be final. The Senior Associate Dean of Education shall make the determination as to whether both conditions have been met.

In the event that an appeals process commences, new evidence may not be presented during the appeals process unless the student can prove the evidence was unavailable during the period in question. The Senior Associate Dean of Education shall determine whether the student may submit new evidence on that basis.

The Senior Associate Dean of Education may request a meeting with the Physical Therapy Program Student Promotions Committee for any reason and may request any additional information related to the student's academic, clinical or professional performance throughout the program.

Grounds for an appeal include the potential that the decision of the Program Director is not supported by substantial evidence; or the actions taken by the Program Director are not consistent with the nature of the violation or lapse in performance based on the circumstances surrounding the event and the prior record of the student.

**Burden of Proof**

During the appeals process: the burden of proof rests with the student. The student must demonstrate by a preponderance of the evidence that his/her dismissal was incorrect or unsubstantiated by evidence of failure to meet the academic, clinical, or professional standards of the Program or violation of any of the academic or professional rules of the Program.

The decision of the Senior Associate Dean in response to the appeal is final. In the event the appeal is not granted, the student will follow the process to withdrawal from the University as outlined above.

**Leave of Absence**

Continuous registration is a requirement for active status in the PT Program. A student leave of absence (LOA) is a period of non-enrollment during which the student is not formally working toward the DPT degree. Students in good standing who have extenuating personal or life circumstances that are interfering with their learning may petition the Program Director to take a leave of absence for this purpose and with the intention of returning to the PT Program after the LOA. A LOA is granted for one academic year. Due to the nature and design of PT Program curriculum, LOAs for shorter than a year will not be considered. The University of Colorado Anschutz Medical Campus Policy on LOA will be followed for a LOA that is related to physical or mental health.

When a LOA is necessitated by physical or mental health needs, the student is responsible to:

1. Contact the Campus Assessment, Response & Evaluation (CARE) Team and work with this office to complete a required Leave of Absence Request Form, provide any additional reports, forms or other information as required. Students must submit the LOA Request form to the Program Director or designee.
2. Remain in communication with the SPC, their faculty advisor, and/or the Program Director according to the Leave of Absence approval letter from the PT Program.
3. Complete all requirements set forth by the Anschutz Medical Campus Policy on LOA before return to campus and to the PT program.

When a LOA is necessitated for reasons other than physical or mental health needs (e.g. personal, financial, military, etc) the student is responsible to:

1. Contact the Student Promotions committee to complete a required Leave of Absence Request Form, provide any additional reports, forms or other information as required. Students must submit the LOA Request form to the Program Director or designee.
2. Remain in communication with the SPC, their faculty advisor, and/or the Program Director according to the Leave of Absence approval letter from the PT Program.

3. Complete all requirements set forth by the PT Program as stipulated in LOA approval letter from the PT Program before return to campus.

To re-enter the program following a LOA, students are required to summarize in writing and/or discuss in the form of a meeting with the SPC, what they have done during their time away to prepare for re-entry into the Program as well as how they have addressed any required elements as outlined in their LOA approval letter. An assessment of readiness to return will be made by the SPC. This could include assessment of didactic knowledge, clinical skill, and professional development related to the professional behaviors, and proof that other health related, or personal issues have been adequately addressed. The SPC will make a recommendation to the Program Director who will make the decision about re-entry to the program. As a part of re-entry, a student will be required to attest, in writing, their ability to meet the Technical Standards. The Technical Standards for Admission, Promotion and Graduation apply to all students throughout the program and upon re-entry after a leave of absence. If the student is unable to meet the Technical Standards at any time while enrolled in the program, it is the responsibility of the student to inform the program within five days. This is for the safety of the student and those with whom the students may interact.

A LOA may be extended for up to one additional academic year, on a case-to-case basis after review by the Program Director. The student is responsible to apply for the extension using the same request form and process. If an extended LOA is approved, the entire LOA will be limited to a maximum of two academic years. A student has five years from the time of initial matriculation to complete the program. If a student has not met requirements within this time period, the student will be withdrawn from the program.

An approved LOA request will interrupt and delay the student's progression in the Program for one or more years. Revisions to the curriculum are not common but may occur on a case by case basis as recommended by the SPC and based on the approval from Course Coordinators and the Program Director. Revisions to the curriculum may impact course requirements and progression. Upon the student's return, additional courses/credits may be necessary to meet current curricular requirements. Additionally, financial aid and scholarships may be impacted by a LOA depending on the student's circumstances. The student will work with the Office of Financial Aid to determine the impact of LOA on their personal situation.

## **Risk Management**

### ***Disclosure of Student Activity Limitations***

Physical Therapy is an intellectually, physically, and psychologically demanding profession. Those abilities that physical therapists must possess to practice safely are reflected in the technical standards document. Students must be able to meet these minimum standards, with or without reasonable accommodation, for successful completion of degree requirements. Accommodations for disability may apply if known or disclosed. Additionally, Physical Therapy education and practice requires activities that can expose a student to risk of physical injury if the student's joints, ligaments, tendons, or other tissues contain weaknesses, known or unknown, or previous injuries.

Throughout their enrollment in the Program, students are expected to know their own existing physical limitations, or obtain an appropriate physical screening examination, and to withhold themselves from participation in any activity that they feel might aggravate the condition or exceed physical abilities, or accept any and all risk of participating in the activity. Any general liability incidents (on campus "non-medical treatment" injuries such as slip and falls) should be reported on the following website, <https://www.cu.edu/risk/> under the general liability claim section. If students practice outside of class time, neither students nor participants would qualify for university workers' comp, nor is there any accidental medical payment coverage that applies.

### ***Student Responsibilities***

Students are responsible for notifying instructors about any physical or other conditions that limit their ability to participate in any curricular activity. Students with such conditions should either withhold themselves from participating in any curricular activity that they feel might aggravate the condition or exceed their physical abilities, or assume full responsibility for their participation. Students with limiting conditions who choose to let an instructor use them to illustrate a condition or demonstrate an intervention technique assume full responsibility for their participation.

### ***Immunization Requirement***

Pursuant to University Policy, all students enrolled in clinic-based health care training programs must submit evidence of immunization prior to placement in a clinical setting. Failure to submit evidence of required immunizations may result in the inability to place the student in a clinical setting, delay in progression, or inability to progress.

### ***Injury During Class Time***

A student who is injured in a class will notify the instructor within 24 hours of the incident, and a report will be completed and filed. Report forms can be found online at <https://www.cu.edu/risk/> (see the link, "File a Claim.")

Students who are employees of the University of Colorado are to report all work related injuries to University Risk Management (URM) within 4 days of the accident <https://www.cu.edu/risk/incident-procedure> (<https://www.cu.edu/risk/incident-procedure/>)

Student Employment Handbook: <http://www.ucdenver.edu/student-services/resources/CostsAndFinancing/FASO/Do/StudentEmployment/Pages/StudentEmploymentHandbooks.aspx>

Note: A basic first aid kit and an AED (defibrillator) are located on the pillar in the PT Program Lab ED1-3300.

## Policy on Disclosure of Personally Identifiable Information in an Emergency Situation

In accordance with the Family Educational Rights and Privacy Act (FERPA) (<http://www.ucdenver.edu/policy/Pages/PrivacyPolicy.aspx>) and implementing regulations, the Physical Therapy Program will assess whether or not a given situation is truly an emergency and if it is necessary to the health and safety of the student to disclose information contained in his/her record.

Section 99.36 of the FERPA regulations reads: "An educational agency or institution may disclose personally identifiable information from an education record to appropriate parties in connection with an emergency if knowledge of the information is necessary to protect the health or safety of the student or other individuals." General policy guidelines and additional information may be viewed at <https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html> (<https://www2.ed.gov/policy/gen/guid/fpco/ferpa/>)

## Student Advocacy

### *Grievances*

The Associate Dean for Student Advocacy can advocate on behalf of students at meetings of the Student Promotions Committee, provide advice, assist in presenting a student's point of view, and propose solutions to academic and nonacademic issues <http://www.ucdenver.edu/academics/colleges/medicalschoo/education/studentaffairs/studentresources/Pages/StudentAdvocacy.aspx>. In addition, the campus Ombuds Office is available to listen to complaints, problems, or concerns. The Ombuds person can help a student evaluate options and may offer referral to other appropriate resources for assistance. The Ombuds Office is located in Room 7005C in Building 500 of the School of Medicine and can be reached by phone at (303) 724-2950. The Ombuds Office maintains a policy of strict confidentiality and does not keep written records. The only time an exception may be made to this policy is when the Ombuds Office believes that there is an "imminent threat of serious harm."

The University is committed to maintaining a positive learning, working and living environment. The University will not tolerate acts of sexual harassment, Protected Class discrimination or harassment, or related retaliation against or by any student, faculty, or administration. Individuals who violate the University Policy on Discrimination and Harassment, the University of Colorado Sexual Harassment Policy, the University of Colorado Conflict of Interest in Cases of Amorous Relationships Policy, may be disciplined or subjected to corrective action, up to and including termination, suspension or expulsion.

### *Sexual Harassment*

As a place of work and study, the University must be free of inappropriate and unwanted conduct and communication of a sexual nature, of sexual harassment, and of all forms of sexual intimidation and exploitation. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment, living conditions and/or academic evaluation; when submission to or rejection of such conduct by an individual is used as the basis of employment or academic decisions affecting such individual; or when such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or educational environment.

The CU Sexual Harassment Policy that governs grievances related to sexual harassment is available at: <https://www.cu.edu/ope/efficiency-and-effectiveness/presidents-task-force-efficiency/aps-5014-sexual-harassment-policy>. The University of Colorado Denver and Anschutz Medical Campus has adopted firm policies against sexual misconduct and discrimination. If you feel you have been the subject of sexual misconduct or discrimination, or you have witnessed/become aware of incidents of sexual misconduct or discrimination, please make a report to the Office of Equity. Reports can be made by phone (303-315-2567), via email ([equity@ucdenver.edu](mailto:equity@ucdenver.edu)), or on the Office's webpage found here: <https://equity.ucdenver.edu/>.

Any concern regarding faculty-student interactions should be addressed to the Associate Dean for Student Advocacy, located in Room 8118 in RC-1. Student contacts with the office are confidential. The office is staffed by the Associate Dean for Student Advocacy and Counseling, and the Administrative Program Specialist. The phone number is (303) 724-8036 or (303) 917-4257. More information can be found at: <http://www.ucdenver.edu/academics/colleges/medicalschoo/education/studentaffairs/studentresources/Pages/StudentAdvocacy.aspx>.

## General Information and Resources

### *Communication*

The Physical Therapy Program uses several different methods of sharing information with students, depending on what is most appropriate to the circumstances. Students are responsible for developing and maintaining the professional habit of checking daily for information and announcements that may be posted via e-mail, on their class website, placed in student mailboxes, posted to Canvas, or by other means. It is expected that students will take responsibility for staying up to date on information made available to them.

### *Student Contact Information*

Students are responsible to keep their contact information (address and phone numbers, including emergency contact information) up to date with the university system. It is recommended to update information at the beginning of each semester and more frequently as needed.

**To update the university system**, go to: <https://portal.prod.cu.edu/UCDAccessFedAuthLogin.html>. Click on the CU Denver Anschutz. Enter login and password. Click on the Student Center, the All Student Functions. In the window that opens, scroll toward the bottom and click on the links in the Personal Information to update information.

### ***Mailboxes***

Student mailboxes are located in the Education 1 Building – Room 3300. Students are expected to check their mailboxes daily.

### ***E-mail***

The University of Colorado provides an e-mail account and anti-virus software for each student at no cost. E-mail addresses are typically set up as [firstname.lastname@CUAnschutz.edu](mailto:firstname.lastname@CUAnschutz.edu). The CU e-mail account is set up automatically by the University as each student matriculates with 25 GB of storage space allotted per student. Students receive an introduction to e-mail prior to orientation. Any computer with a web browser and internet access may access this account by navigating to <http://myemail.ucdenver.edu>. An introduction in the Canvas Learning Management System is provided to students prior to orientation. Faculty will use both e-mail and Canvas to post course materials as adjuncts to on-ground classes and to provide updates.

E-mail communication to students from faculty and staff will be sent to the student's CUAnschutz.edu e-mail address. Students are responsible for checking their university e-mail daily. Students have the responsibility to become comfortable using these systems. If problems arise when using e-mail, students should contact the student e-mail help desk at (303) 724-2171 or refer to <https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/email-and-webmail>. Proper e-mail etiquette should be used for all communication.

### ***Bulletin Boards***

Two bulletin boards are provided in the Education 1-3300 lab; one is for posting of job opportunities and the other is for current campus lectures and activities.

### ***Learning Management System (Canvas)***

Canvas is the learning management system used by the University of Colorado for online posting of courses and supplemental course materials.

To access Canvas use Google Chrome or Mozilla Firefox to login: <https://passport.ucdenver.edu/login.php>. Username and password is the same as what is used to access CUAnschutz email.

If assistance is needed in accessing or utilizing Canvas, the student should contact the Canvas HELP desk Monday-Friday from 7am-7pm at (303) 724-4357 [cuonline@ucdenver.edu](mailto:cuonline@ucdenver.edu). If they are unable to resolve the problem, or if the student needs an exam reset, he/she should contact the Program Technology liaison.

## **Technology**

Although students are not required to purchase a computer during their enrollment in the Program, purchasing a computer is strongly recommended as daily announcements are distributed via email and Canvas, and many assignments require computer access. Computers are available for student use in multiple locations throughout the AMC Campus including; the Health Sciences Library, Education Building 1-Rm. 1501, Education Building 2N-Rm. 2201 and Research Building 1N-Rm. 1309. In addition, there are 5 computers located in the PT Program teaching labs, on the third floor of the Education 1 Building.

The University of Colorado and the PT Program support the transmittal of information using Microsoft products. All students are expected to know or learn the basics of using the Microsoft Office Suite (Word, Excel, PowerPoint, and Outlook).

The University provides access to computers, which are outfitted with Microsoft Office Suite and the Visible Human Dissection and also have CD writing capabilities. Black and white printing is available in the library, via a dedicated access card, available at the Reference Desk. Printing in all other student computer labs is available via an access card, which is available at the AMC Bookstore, on the first floor of Building 500.

Free wireless Internet access is available across the entire AMC campus. The name of the wireless networks are CU ANSCHUTZ GUEST or CU ANSCHUTZ. CU Anschutz Guest is a lower-security network that does not require credentials to log into. CU Anschutz is a higher-security network that only students, faculty, and staff have access to. To connect, select the CU Anschutz network and, when prompted, enter your university credentials (the same ones you use to log into Canvas and UCD Access).

Students should not store their documents on the hard drives of any university-owned computers. Assignments or other files left on these computers are deleted on a periodic basis. It is the student's responsibility to save assignments, data, and documents on their own removable disks or jump drives. The Program recommends that students purchase a USB flash drive to store, transport, and share electronic files. Also, backup all of data on a regular basis to ensure data does not become corrupted.

Students may not download music files or any programs from the Internet to University-owned computers. Students should also refrain from using the Internet to access websites with inappropriate content, as these sites may leave "cookies," which can generate offensive content or advertising. IT Services will research the computer address of any inappropriate content found. If there is reasonable certainty of the computer user's identity from the computer address, the information will be provided to the appropriate review board and/or department administrator for further action, as

well as the CU System Legal Office. Under no circumstances will the University provide any identifying information directly to the RIAA or any other artist association unless validly subpoenaed. Students should be aware that any use of UC Denver computers and/or networks for illegal music/movie downloads or sharing is in violation of UC Denver computing policy. In addition to corrective and/or disciplinary action issued by the University, individuals could be found personally liable to an artist association and be subject to applicable civil and criminal penalties.

University employees and students are responsible for understanding and adhering to copyright law in creating scholarly and artistic works. Individuals who violate copyright law may be personally liable for such violations. For more information about securing copyright protection and avoiding copyright violations, see the resources available at: <http://hslibraryguides.ucdenver.edu/Copyright> (<http://hslibraryguides.ucdenver.edu/Copyright/>)

## Fire Response and Emergency Procedures for the Anschutz Medical Campus

The campus fire alarm system has an audible and visible notification (horns and strobes,) as well as a public address system. Students should familiarize themselves with alarm pull-stations, extinguisher locations and exits in all buildings they are routinely in. All students must evacuate the building when a fire alarm is sounded.

The Fire Plan for AMC includes mandatory evacuation, following the A-RACE actions as follows: (A building evacuation plan is posted in the lobby area in each building.)

- Activate: Pull the nearest fire alarm pull-box.
- Rescue: Assist any injured or disabled persons out of the area, if safe. Do not put anyone, including oneself, in danger.
- Alert: Notify others in the immediate area. From a safe location, call 911. Give the exact location of the fire (campus, building and room number), what is burning, and your name.
- Contain: Close doors as you exit the fire area.
- Evacuate: Follow the EXIT signs to the shortest or safest route to safety. DO NOT USE THE ELEVATORS! Reassemble in a safe area with other students and coworkers to do a head count.

Use of Fire Extinguishers – Fighting fires is always a difficult decision. Extinguishers are intended to be used immediately, before the fire becomes larger. EVEN SMALL FIRES ARE DANGEROUS! Prior to fighting a fire, students must understand the use and limitations of the equipment. Fight small fires with the proper extinguisher only if you are trained to do so and you have an escape path. Consider whether it is a better choice to follow the above procedures.

Blue Light Emergency Stations are located on outside walkways throughout the campus. Press the call button to reach Campus Security from any of these stations. Red telephones are also located on each floor of campus buildings. Dial 911 for Emergency or 4-4444 for non-emergencies.

The University of Colorado also offers an Emergency Notification System, to alert you of any campus-wide threats, snow closures or other urgent information. You are strongly encouraged to subscribe to this free service, which can provide text message alerts to your cell phone or other options. Contact information for the Campus Emergency Notification System:

University Police: <https://www.cuanschutz.edu/police/>

How to respond to a campus emergency: <https://www.cuanschutz.edu/police/alerts> (<https://www.cuanschutz.edu/police/alerts/>)

To receive emergency alerts: <https://www.cuanschutz.edu/police/cu-alerts/anschutz-alerts> (<https://www.cuanschutz.edu/police/cu-alerts/anschutz-alerts/>)

Email: [Emer@cuanschutz.edu](mailto:Emer@cuanschutz.edu)

Phone (303) 724-4444

Many of the rooms in Education I and II buildings have security features that include reinforced caulking and protective film on door windows, a panic button, that when pushed, and an emergency trauma kit. Step-by-step instructional signs are near the panic buttons for quick reference.

When the panic button is pressed, the following events will occur:

1. University Police are notified immediately;
2. Blue strobe will activate inside of all rooms equipped with strobe;
3. Blue strobe will activate outside (in hallway) of the room where the button was pushed;
4. Doors will lock on all rooms equipped with security project door locks in the building; and,
5. Occupants of the room may leave the room, however, only University Police will have access to enter the room.



Anyone with specific details regarding the incident should contact University police immediately by calling (303) 724-4444. Occupants should access the emergency trauma kit for severe bleeding control, if necessary.

#### Reminders:

- Only push the panic button if there is an imminent threat.
- Only open the emergency trauma kit if there is a serious injury that needs to be treated.
- Only call (303) 724-4444 IF you have information related to the imminent threat.
- The film on the door windows is intended to block the view of a threat outside of the room. Do not remove or damage security film on windows.
- Do not prop doors. Propped doors defeat the enhanced security system.

## Process for Filing a Complaint

If a situation should arise wherein a student believes that the CU PT Program is incompliant with the APTA's accrediting guidelines, students are requested to bring the concern to the attention of the Program Director. If the concern is not satisfactorily addressed, the student may contact the Commission on Accreditation in Physical Therapy Education (CAPTE), according to the APTA policy and procedure, which <http://www.capteonline.org/Complaints/>.

## Course, Curricular, Lab and Facilities Related Items

### *Tuition and Fees*

All Physical Therapy students are responsible to pay for all tuition and student fees imposed by the University of Colorado Anschutz Medical Campus for courses in which students are enrolled. Occasionally there may be an outstanding student balance with an entity within the university (i.e., tuition, books). The system will automatically block a student from registration if his/her tuition and fees are unpaid. A financial hold may be placed upon a student that would prohibit him/her from continuing education, whether it would be for registration or graduation, until payment is made.

### *Lab Groups*

Students are assigned to specific lab groups with the main purposes of (1) designating equal numbers of students per quadrant and (2) allowing students to have a broader experience. Each semester lab groups are reassigned for reasons of space, equipment, faculty instruction, and attention. Therefore, permission is required for any lab group changes. If there are circumstances that necessitate a student to change lab groups for a single day, the student must receive permission to do so from the individual Course Coordinator. If there are circumstances which necessitate that a student change lab groups for the entire semester, the student must discuss this change with, and receive permission from, the Administrative Staff Member who created the lab groups for the requested semester. PT Program faculty members are not required to facilitate lab group changes or to require one student to change lab groups for the benefit of another. Students are offered the opportunity to submit carpool requests and an attempt will be made to honor them, but this may not always be possible.

### *Syllabi, Course Packets, Books, Journals*

Course syllabi and course packets may be available on Canvas and/or purchased at the discretion of each Course Coordinator. Books may be purchased at the campus bookstore or through online vendors. Many books and journal articles are placed on reserve in the Health Sciences Library and course materials are frequently posted on Canvas for student access. Students are responsible to retain their syllabi and curriculum information for post-graduate education verifications.

### *Use of Facilities and Equipment*

Whenever facilities and/or equipment are used, it is the responsibility of the user to restore them to a quality as good as they were found. Users are expected to be respectful of previously scheduled events and the needs of others, realizing that these are shared resources.

### *Identification Cards, Building and Parking Access*

Identification Cards are issued during orientation and should be worn at all times when on campus. Students must have an ID card to access the PT Program Labs, student computer labs, building access from 6pm-6am and on weekends, and library privileges. If students choose to pay for on-campus parking, ID card also controls access to the campus parking lots. The PT Program Labs, Student Lounges and Computer Labs are available 24/7. ID Cards must be returned when the student withdraws or graduates. The Security Badging Office issues original cards and will replace lost cards or those with defective magnetic strips. Replacement fees are subject to change; contact the ID Access Office at (303) 724-0399 for more information.

### *PT Program Labs Access and Use*

Students may use the PT Program labs for study and practice during the week when classes are not taking place, after hours or during weekends with ID badge access. Audio/visual equipment is not to be used after hours or during weekends, unless authorized by the Program Technology liaison. All PT lab equipment, supplies, and materials are for the exclusive use of current students as part of their physical therapy educational curriculum. Therefore, all school equipment and materials, including but not limited to anatomical models, stethoscopes, BP cuffs, goniometers, stopwatches,

wheelchairs, and DVDs, are for educational purposes only and should be left available for all students. Students who borrow any item must sign it out according to the instructions provided by Physical Therapy Program faculty and administrative staff members.

PT Lab doors must be closed and latched for security purposes. Doors to the hallway cannot be propped open for more than 90 seconds or Campus Security is called. If Campus Security is called to respond to an unlocked door, students who last accessed the lab through the open door will be responsible for paying the fees charged to the Program for a breach of security.

### ***Courtesy clean-up***

All students: take responsibility for the following after each class in the ED1-3rd floor labs and/or following practice or lab activities:

- Place all dirty linen into red or blue hanging linen bags.
- Throw out any garbage (drinks, paper, etc).
- Place chairs and plinths in standard configuration (displayed on screen and posted in labs).
- Return equipment or supplies to cabinets/ correct storage location
- Plug in hi-lo tables and replace outlet covers.
- Wipe table head/ face rests after use with disinfectant. All users should use a sheet or clean with disinfectant after every use and should drape face hole with towel to protect equipment from facial oils.
- Tidy kitchen in room 3300. Wipe counters, put/throw away items after use.
- Close windows.

Students should complete courtesy cleanup after each time they use labs on their own (e.g.: when practicing skills outside of class time or practice labs, evenings and weekends) as well as after each scheduled lab session.

Student employee cleanup: Duties to be completed by student employees include, but are not limited to the following:

- Return equipment to cabinets/ correct storage location (weekly)
- Plinths
  - o clean with disinfectant (weekly)
  - o clean with bucket of hot, soapy water (biweekly)
- Laundry:
- consolidate linens into bin for pick up (Mondays)
- Chairs: clean with disinfectant and/or fabric cleaner (monthly)
- Check Hydroculator water level in 3300 – top off as needed (weekly)
- Exercise equipment: clean with disinfectant (monthly)
- Mirrors in all labs: clean with glass cleaner & newspaper (monthly)
- Wipe off surfaces for dust (monthly), e.g. computer tables, podium, etc.
- Kitchen and Refrigerator: clean and disinfect (monthly)
- Computer maintenance (between semesters)

A/V student employee cleanup: A/V student employee's complete duties to be completed daily include, but are not limited to the following:

- Turn off projectors
- Clean white boards
- Tidy up podium (microphones in chargers and cords neatly coiled, remotes stored under podium)
- Check supplies (markers, erasers, batteries, DVDs)

- Report any operational problems to student employee's supervisor.

#### ***Information for Locker Use***

Lockers are available for use during the semester; select one in the Education Building 1, Education Building 2 North or Education Building 2 South. Email information including name, school of enrollment, locker number, building in which the locker is located, e-mail address, and phone number to: [ess.amcstudentlockers@ucdenver.edu](mailto:ess.amcstudentlockers@ucdenver.edu). Locks are not provided. Educational Support Services will conduct random checks of lockers to determine if lockers are being used that have not been registered. If one fails to register their lock with ESS, the lock may be removed and contents disposed. Lockers must be cleaned out by the end of the spring semester. All locks left on after the end of the spring semester will be removed and contents disposed. For questions contact the Educational Support Services Department in Education Building 2N, Room L501.

#### ***CDs/DVDs***

Faculty may choose to place specific CDs or DVDs to be accessed in the Health Sciences Library. These materials may not be checked out or copied, but can be viewed at the Library.

Students will sign a videotape/photography release form during orientation for the Program to use videotapes or photographs produced during classroom and laboratory instruction for educational or promotional purposes.

#### ***Copy Machine***

Only faculty and staff may use the PT Program Office copy machine. Students may not use the machine. All work requests must go through administrative staff and a work request form must be completed. Only work authorized by the Program will be copied.

#### ***Use of Equipment***

Equipment made available for student use in the PT Program Laboratories (ED1- 3200, 3300, 3400) may not be removed from these areas without permission from faculty. All equipment must be signed out by the student. Specific courses require use of some equipment (for example, wheelchairs) outside of the laboratories (for example, on outdoor terrain). Please handle equipment in the appropriate manner to prevent malfunction or damage. Please notify supervisor or PT administrative staff members of any equipment malfunction or disrepair.

#### ***Telephone Access***

A campus phone for student use is available in the PT Lab 3300. Dial 9 and then the number to reach non-campus numbers.

## **Professional Standards**

#### ***APTA Membership***

In support of physical therapy as a profession, and the Program's desire to promote professional responsibility, all students and faculty are strongly encouraged to be members of the American Physical Therapy Association (APTA). Students are also encouraged to seek opportunities for professional growth and attend APTA conferences and meetings held at local, state, and national levels. <http://www.apta.org/>

#### ***Program Dress Code***

As a doctoral profession, Doctors of Physical Therapy (DPT) are members of a team interacting with patients and other professionals in many healthcare settings. There are considerations that must be given to ensure that physical therapy constituents are presented in a professional manner both on campus and externally. The following issues/concerns have been addressed in designing this document:

- The physical therapy learning process requires both academic learning and hands on contact with simulated and actual patients.
- The practice of physical therapy requires professional communication and consultation, as well as physical contact with patients.
- The lab setting has its own unique set of clothing requirements for students to learn and practice skills.
- When students enter the clinical setting, they are interacting with a variety of persons of all ages, cultural backgrounds and sensitivities and are representatives of the University of Colorado PT Program.
- Professionalism and professional attire are expected nationwide amongst our colleagues.

Considering these issues, there is a dress code for the CU PT Program. This dress code is sensitive to the needs of the students, the location of the program, the clinical sites receiving our students and also takes into account the issues of professionalism noted above.

**Lab Attire:** Lab attire must allow exposure of any area of the body necessary for lab activities. Frequently, areas of the body need to be observed even if they are outside the primary focus of the lab. Therefore, all students must come to every lab prepared to appropriately expose any area, with the exception of genitals and female breasts, while continuing to maintain a sense of modesty at all times. Towels and sheets should be used during lab to cover or drape areas of the body that may be at-risk for exposure when demonstrating, practicing, or otherwise carrying out procedures that move or place the extremities in various positions.

It is appropriate, at the student's discretion, to wear covering clothing such as t-shirts, sweatshirts or sweatpants that can easily be removed as needed during the lab session. Class instructors may at times email the class to let them know a particular lab will not require lab attire on a given day. At all other times, lab clothes are mandatory unless cleared by the instructor.

Examples of Appropriate Lab Attire:

All:

- Sports bra
- Halter top
- Tank top with built in bra
- Bathing suit top
- Lycra or bike shorts (may be used as appropriate attire or beneath regular shorts for coverage of the pelvic area)
- Shorts of moderate length (adequately covering undergarments) ideally loose enough or with elastic waist to expose upper pelvis-can wear these over lycra bike shorts

Students have the responsibility to use towels, sheets, or other appropriate draping to maintain proper coverage when working together with other students and instructors in the lab. Students must properly drape themselves and remind fellow students to do the same in order to avoid unnecessary or unforeseen exposure. This is especially important when lower extremities are moved or placed in certain positions during lab activities.

Regular Class Attire: The CU Program is located on a multi-disciplinary academic medical campus. It is not unusual to encounter patients or other professionals in hallways and open areas. Therefore, care should be taken to dress in an appropriate manner for contact with the public when outside of the PT labs. General attire is appropriate such as denim, moderate length shorts, sleeved or conservative sleeveless tops.

The Following are NOT Appropriate for Regular Class Dress:

- Midriff baring tops or other tops/bottoms with torso exposure.
- Low cut tops allowing exposure of breasts or bras.
- Tank tops that have thin straps or wide arm openings and do not allow for adequate coverage of bras or other undergarments.
- Tank/camisoles are not appropriate unless worn in combination with another shirt or blouse.
- Shorts shorter than "moderate" length.
- Bare feet. (Shoes must be worn at all times outside of lab)
- Low rise pants exposing undergarments.

Student Employees: Due to the frequent contact with prospective students, faculty from other programs, and the public, student employees are asked to pay particularly close attention to their attire while working on campus.

#### ***Clinical Professional Attire:***

When entering the clinic, certain standards are raised due to contact with patients/clients and the general public. In addition, dressing professionally automatically commands a higher level of respect from those with whom the physical therapist comes into contact with. The dress expectation is for professional appearance that allows for patient treatment. Exceptions to the professional clinical attire standards, due to specifics of an individual clinic setting, must be cleared by the student with both the clinical instructor and CU PT Program Director of Clinical Education. For instance, in a setting where exposure to body fluids is common (e.g. severe neurological trauma), scrubs may be required or worn as the dress code in that facility.

In any facility where a more formal dress code exists, this code will supersede the CU PT Program dress code.

Some facilities maintain a very liberal dress code. Although not mandatory, it is suggested that students maintain the CU Clinical Professional Attire dress code in those settings as well. By doing so, the student will be presenting a professional image to the community and patient population, as well as setting an example as a Doctor of Physical Therapy.

It is the student's responsibility to determine the minimum facility requirements prior to the first day of clinical. Dressing more formally on the first day of clinical until dress code is clarified is suggested.

Guidelines for /Examples of Appropriate General Clinical Attire:

## Top

- Collared shirt (short or long sleeved)
- Dress shirt with or without tie
- Normal dress shirt or blouse
- Sweaters or jacket

## Bottom/shoe wear

- Pleated, flat-front, khakis or similar dress style pants
- Skirts of sufficient length and looseness to cover when squatting or working on a mat table with a patient
- Clean, closed toe shoes with socks.
- Relatively low heels are recommended

The Following Items are Not Appropriate for Clinical Professional Dress:

## All:

- T-shirt or similar style shirt
- Midriff baring tops or other tops/bottoms with torso exposure
- Low cut tops that could potentially expose breast/chest when leaning over a patient
- Shorts unless specifically cleared by clinical site
- Low cut pants that may expose undergarments when working with patients (i.e. squatting to floor)
- Informal pants such as jeans or cargo style/painter's pants
- Skirts of insufficient length and looseness to cover undergarments and thighs when squatting or working on a mat table with a patient
- Open toed or heel shoes (such as sandals) unless specifically cleared by clinical site
- Shoes without socks or nylons (exception is made if wearing a skirt)
- Athletic shoes unless specifically cleared by clinical site
- Denim or ripped clothing
- Tight pants and/or shirts that are revealing or suggestive clothing that exposes a tattoo while working with a patient
- Hair dyed in unnatural colors or in extreme cuts or styles
- Facial, tongue piercing
- Excessive ear piercings
- Excessively wrinkled or dirty clothing

***Guest Speakers:***

When guest speakers present lectures, it is respectful to dress in attire similar to professional clinical attire. There are certain dress items that are appropriate for guest speakers, but not for clinicals, such as open toe/heel shoes. The student must use discretion and remember that s/he is representing the PT Program to the guests. Each class instructor is responsible for educating his/her class as to dates to expect guest speakers and appropriate attire.

***Professional Meeting Attire (i.e. State or National APTA Meetings):***

When attending professional meetings, students represent the profession of physical therapy and the CU PT Program in particular. Therefore, a minimum of professional clinical attire is required while the participant is a student at the school. Due to the community-wide exposure, it is recommended but not required that a more formal level of dress is worn at these events.

***Upgraded attire recommendations are below:***



All:

- Shirt and tie
- Dress pants
- Dress or skirt
- Business-style suit with pants
- Dress shoes with socks or nylons

***Other Considerations:***

- **Jewelry:** The nature of physical therapy involves extensive use of the hands and wrists. Wearing multiple rings, bracelets etc. can lead to discomfort for both the patient and therapist. Many therapists, especially those performing hands on work or “manual therapy”, choose to minimize jewelry. Students may want to consider minimizing use of jewelry both in lab and clinic to reduce likelihood of discomfort to the patient or lab partner. In pediatric settings, or other settings where patients may have impaired cognition, only modest jewelry, especially earrings and necklaces should be worn to avoid injury to the therapist (i.e., grabbing of dangling earrings by a child or confused adult).
- **Fingernails:** The nature of physical therapy involves extensive use of the hands in contact with the patient. At times, such as in performance of “manual therapy,” longer nails may push into the skin of the patient and cause discomfort. Additionally, dry hands and cuticles due to frequent hand washing are common in all settings. Due to these risks, it is recommended that students maintain their nails at a conservative, shorter length when they will be contacting either patients or lab partners. In the clinical setting, if polish is used, it should be a conservative shade without nail jewelry or nail art.
- **Hairstyle:** Frequently, physical therapists are in close contact with patients and are required to lean over patients to provide care. A hairstyle is recommended for clinic and lab that is either short or able to be pulled back so it does not obstruct contact and view of patient.
- **Hats:** Some instructors may be opposed to wearing of hats in their classes. If so, they will announce this objection at the beginning of the semester or speak with students on an individual basis. Students are expected to adhere to instructor requests unless they have religious or medical reasons that require a head covering. In such cases, the student should communicate that information with the course coordinators at the beginning of the semester.
- **Compliance:** Students are expected to comply with the stated dress code. If the code is violated, each instructor is responsible for directly discussing the issue with the student. If repeated violations occur, the student will be referred to the Student Promotions Committee for further disciplinary action.

## Professional Titles

As a courtesy, on the CU campus, students should use appropriate professional (doctor), academic (professor), or courtesy titles (Mr., Mrs., Ms.) when addressing an individual, unless they have been invited to move to a first name basis.

Within the Physical Therapy Program individual faculty will designate how they prefer to be addressed in lecture or laboratory settings.

In the clinic, always use a courtesy title and surname unless the patient/client, therapist, staff, or other health care professional gives permission to use his/her first name. As a general guideline, it is safer to err in the direction of formality than to assume everyone prefers informality.

## Drug and Alcohol Policy

CU complies with the federal Drug Free Schools and Communities Act. The University of Colorado does not allow the unlawful manufacture, dispensation, possession, use, or distribution of a controlled substance (illicit drugs and alcohol) of any kind and of any amount. These prohibitions cover any individual's actions, which are part of University activities, including those occurring while on University property or in the conduct of University business away from the campus <http://www.ucdenver.edu/about/departments/HR/Documents/Drug%20and%20Alcohol%20Info.pdf>. University funds, including those raised as part of class fundraising efforts, cannot be used for the purchase of alcohol.

The passage in Colorado of Amendment 64 does not change existing University of Colorado campus policies that prohibit the possession, use and distribution of the drug by students, employees and all other visitors on university properties. The use or possession of marijuana is still not allowed on campus, or in the conduct of university business away from campus. <http://catalog.ucdenver.edu/content.php?catoid=1&navoid=24>

## PT Program Policy and Procedure for Drug Screening

### University of Colorado School of Medicine Drug Screening Policy

***Policy Statement:***

The University of Colorado School of Medicine requires that all students submit to a drug screen prior to starting the clinical experiences portion of their program or sooner if designated by the program. A negative drug screen is required for participation in any clinical experience. This policy applies to all enrolled students in the MD, PT, and PA degree programs.

**Rationale:**

All health care providers are entrusted with the health, safety and welfare of patients, have access to controlled substances and confidential information and operate in settings that require the exercise of good judgment and ethical behavior. Thus, an assessment of a student's possible impairment that could diminish the student's capacity to function in such a setting is imperative to promote the highest level of integrity in patient care.

Clinical facilities that serve as educational and training sites for students increasingly require drug screening for individuals who provide services within the facility and particularly for those individuals who provide patient care. Clinical experiences are an essential element of all curricula and are required of School of Medicine Students in the MD, PT and PA degree programs. In addition, many licensing agencies require that individuals pass a drug screen as a condition of licensure and/or employment. It is thus in the interests of both students and the School of Medicine to identify and resolve potential issues where a student may not be allowed to participate in a clinical experience due to use of controlled or illegal substances. For purposes of this policy, "illegal substances" means illegal use of controlled or illegal (i.e. prohibited) substances. It does not mean prescription drugs that are lawfully being taken by a student prescribed by a licensed health care professional; the student must be under the direct medical care of the licensed health care professional. Although marijuana is legal in the State of Colorado, marijuana is a Schedule 1 substance under federal law and continues to be an illegal substance for purposes of this policy. In addition to other illegal drugs as described above, the overuse and/or abuse of alcohol in the learning environment is also prohibited under this policy.

The University of Colorado School of Medicine has the responsibility to attend to factors that may adversely affect the security of the clinical environment and thus increase liability exposure. As a result, the school seeks to enhance its scrutiny of students involved in patient care activities and who are in clinical settings.

***Drug Screening Process:***

- Students enrolled in the MD, PT, and PA programs will receive information about the requirement for drug screening, deadlines for compliance, results reporting and associated fees from their respective educational program representatives. Students will be responsible for the cost of the required drug screening, either individually or through a student fee as determined by each program.
- Students will receive specific instructions from their program representatives regarding the location of the designated vendor drug screen sites and a Drug Screen Authorization document to submit to the vendor including authorization for results to be released to the designated individual in their educational program.
- Results of the student drug screen will be reported electronically to the designated individual in the appropriate educational program, typically within 2 business days. Review of drug screen results will be conducted by the Medical Director of the designated vendor to determine a passing or failing level. The information will be conveyed to the designated individual within the education program. Students who receive a positive screen will be reviewed by the individual program either by a designated individual or a committee and any consequences will be communicated to the student in writing.
- The student has the right to review the information reported by the designated vendor for accuracy and completeness and to request that the designated vendor verify that the drug screen results are correct. Prior to making a final determination that may adversely affect the student, the program will inform the student of his/her rights, how to contact the designated vendor to challenge the accuracy of the report, and the role of the designated vendor in any decisions made by the program.
- Drug screening results will be recorded in an internal database within each educational program and maintained only for the duration of enrollment for each student.
- Drug screen results may be reported to clinical experience sites for clinical placements in compliance with contractual agreements.
- If required by a specific clinical site, a student may be required to submit to additional drug screening based on the contractual agreements with those clinical sites.
- A student whose test results in a Negative Dilute or an insufficient sample may be required to retest immediately. Costs of any retesting are the responsibility of the student. Multiple retests resulting in a negative dilute may be considered a failed test.
- Any individual student may be required at any time to submit to immediate drug screening for cause. This may occur through the designated vendor or it is possible that a contract with a specific clinical training site may have specific requirements dictating the process, handling, and reporting of "for cause" drug screening of an individual student while the student is participating in a clinical experience.

Students who refuse to submit to any required drug screen will be dismissed from their education program.

***Positive Drug Screening Results***

Students who do not pass a required drug screen may face disciplinary action, including administrative withdrawal from courses, placement on a leave of absence, or dismissal from the program. Students may be referred for evaluation and treatment through the Colorado Physicians Health Program (CPHP), Peer Assistance Services, or another designated program as a condition for remaining in the program at the student's expense. Students found to have a substance abuse problem that that will likely pose a danger to patient care, as determined through the drug screening evaluation process, will be referred for independent evaluation and treatment at the student's expense.

#### ***Additional Policy/Procedure Information***

The School of Medicine takes patient safety very seriously. The Technical Standards for students require that all students be able to meet the physical and cognitive demands of the clinical setting as well as exhibit sound judgment at all times. Students who are seriously ill, injured or taking medication that impairs judgment (including, but not limited to, lawfully prescribed medications and Medical Marijuana) may not be able to meet the Technical Standards, and therefore may not be suitable for the clinical environment where patient safety is the topmost concern. A determination of any conditions on a student's ability to participate in clinical experiences or to otherwise proceed in the program will be handled through a committee as determined by each program (MD, PT and PA).

Additionally, the School of Medicine is very concerned about alcohol and drug abuse. A student may be required to undergo evaluation and treatment through the Colorado Physicians Health Program (CPHP), Peer Assistance Services, or by another designated evaluation source in order to remain in the program.

Accepted by PT Faculty: January 2016; Approved by University Counsel May 2016

## **PT Program Procedures for Ensuring a Safe Environment**

### ***Respect of the Rights and Property of Others***

Students should conduct themselves in a manner that recognizes the rights and property of others. Examples of inappropriate behavior include theft, damage to University or personal property of others, disruption of educational or other activities on campus, illegal use of University facilities, harassment or physical assault, and any conduct that threatens the health or safety of others. Reason for Policy: Assists in maintaining a safe environment for all students, faculty and staff.

### ***INTRODUCTION***

The purpose of this policy is to establish minimum standards related to the consideration of applicant criminal history in admissions decisions to the PT Program.

### ***POLICY STATEMENT***

The PT Program at the University of Colorado is committed to ensuring a safe environment. The procedures outlined in this policy apply to admissions decisions for the PT Program.

### ***RELATED POLICIES, PROCEDURES, FORMS, GUIDELINES, AND OTHER RESOURCES***

#### **Procedures**

1. Criminal history information and criminal background checks are part of the application process. Applicants are notified of this as part of the application process and at the time of application in Physical Therapy Common Application System (PTCAS). PTCAS facilitates a centralized background check (CBC) process for accepted applicants. The purpose of the check process is, in part, to ascertain the ability of a student to meet the requirements of clinical education sites and to become licensed physical therapists. The University of Colorado PT Program has chosen to use the PTCAS background check vendor, Certiphi Screening, Inc. Certiphi Screening contacts the applicant after accepting our offer of admission. The applicant is responsible for using the email link provided by PTCAS to complete all necessary information in the Certiphi system and paying the required fee for the background check.

A description of checks completed by Certiphi Screening can be viewed at: [https://portal.ptcas.org/applicants2013/instruction/ptcas\\_cbc.htm](https://portal.ptcas.org/applicants2013/instruction/ptcas_cbc.htm). Results are typically completed within one week. Once the report is complete, Certiphi Screening, Inc. will give the applicant an opportunity to review the results before they are released to the PT Program. The applicant has ten (10) calendar days to verify the accuracy of their report before it is made available to the PT Program.

2. If an applicant indicates that he/she has been convicted of a crime, the applicant shall be permitted to provide an explanatory statement regarding the criminal conviction or charge. The Recruitment and Admissions Committee (RAC) in the PT Program will review the results of the background search and any other documentation provided by the applicant on an individual basis.

3. The PT Program will evaluate criminal history according to the following:

I. The clinical education administrative assistant will be responsible for receiving and scanning all background search reports from Certiphi Screening. Any concerns, questions or issues will be brought to the Director of Admissions who will review the concern. If additional input is required, the Chair of RAC will meet with the Director of Admissions to discuss the results.

II. The review of background searches will be completed during the time period between accepting our offer of admission and prior to program orientation. If the applicant is found to have a criminal history and after a review of the factors listed in #4 below, the PT program determines that the applicant's offer of admission should be rescinded, the determination shall be given in writing.

III. Additional background checks are occasionally required by specific clinical education sites. These must be completed prior to the start of the assigned clinical experience. If the student passed the initial background search, but then is later found to have a criminal history after a review of the factors listed in #4 below, and the PT program determines that the applicant's student status should be rescinded, the determination shall be given in writing.

4. The following factors may be considered in determining how criminal history affects an admissions decision.

- Number of criminal convictions;
- Nature and severity of the offense(s);
- Length of time since arrest and conviction;
- Whether the crime involved violence against persons or property;
- Terms or conditions of any plea, penalty, punishment, sentence, probation, or parole, and the applicant's compliance with those terms;
- Any mitigating information provided by the applicant, and any information provided by the applicant about his/her activities since the conviction; and
- The applicant's ability to comply with any program requirements for clinical experiences, externships, or similar external placements, if this can be determined in advance.
- The applicant's ability to comply with any requirements for licensure as a PT following graduation.

5. Admission may be conditioned on reasonable requirements as to conduct or performance.

6. The applicant will be notified in writing of the admission decision.

#### **DEFINITIONS**

Criminal history includes in-state, out-of-state and international criminal history reflecting misdemeanor or felony convictions. Criminal history does not include:

- A minor traffic offense;
- An arrest; or
- A record that has been sealed by court order.

A "conviction" is defined as a guilty verdict, a guilty plea, or a Nolo Contendere ("No Contest") plea.

### **Policy for Student Community Volunteer and Service Opportunities**

The Physical Therapy program views volunteer and service opportunities in the community as valuable experiences and as an important role and responsibility for Doctors of Physical Therapy. However, there are different types of volunteer and service opportunities that need to be defined by the extent to which they are within our PT scope of practice and part of the PT Program curriculum. Some experiences are supported by the program and supervised by licensed PTs, while other volunteer and service opportunities are outside of PT Program involvement.

This policy provides additional clarification and guidelines to students participating in experiences that are part of the PT Program curriculum (item #1) or outside the curriculum (items #2 and #3). The type of experience affects the risks involved and who is responsible (university, student or the organization/agency) for insurance coverage. There are 3 "types" of volunteer experiences and relationships to the PT Program as described below:

1. Part of PT Program: Volunteer experiences at an organization/agency that are part of, or an extension of the PT Program, and supported through the PT Program (e.g., CU days at the 9News Health Fair, Stout Street, posture screens at senior centers). Students are participating in volunteer experiences that are arranged through and approved by the PT Program with faculty input and support, and the student will be supervised by a licensed physical therapist.

- If these experiences fall within the course and scope of the student's responsibilities, the student would be covered by the University for professional liability (malpractice) insurance and workers compensation insurance; or the organization/agency may have additional insurance for volunteers.
- The organization/agency should provide some level of training for the volunteers and should have some policies and procedures in place to support their volunteer program.

- Students may want to have their own malpractice insurance to cover any potential claim, but they are not required to do so. Further, if a student were injured while providing volunteer care, there is workers compensation coverage to cover any potential injury.

2. Communication through PT Program: Volunteer or paid opportunity, through an organization/agency or to an individual/family, that has been communicated to students by email or other form of communication from PT Program faculty, staff, alumni, or current students. This experience is external to the university and is NOT part of clinical education, supervised physical therapy or otherwise supported by the PT Program (e.g., Night Owls, paid personal attendant). Students can pursue an arrangement and proceed independently without expectation that the PT Program will provide support.

- The organization/agency should provide some level of training for the student and should have some policies and procedures to support their volunteer program or paid opportunity. An organization may also have insurance for volunteers.
- Students are not covered by the University for professional liability (malpractice) insurance. Students should make sure they have their own malpractice insurance to cover any potential claim, or ask whether insurance is needed or recommended. If a malpractice claim was filed by the organization/agency or by an individual/family, the student could be named in the claim and would have to provide their own defense.
- Students are not covered by the University for workers' compensation insurance. Students should have their own health insurance coverage to cover any potential injury. If a student were injured during the experience, the student would be responsible for any medical costs.
- Students assume liability and need to be very clear about what the scope of the volunteer or paid opportunity should be, since they are not licensed to provide physical therapy.
- Students should be aware of additional safety concerns when going into an individual's home for a volunteer or paid opportunity.

3. External to PT Program: Volunteer experience through an organization/agency, or to an individual/family, that is external to the university and outside the scope of physical therapy. These are experiences and opportunities that the student finds and secures on their own (e.g., volunteering at a charitable, athletic or similar event). This is only different from #2 (above) in that there has not been any communication shared by the PT Program faculty, staff, alumni, or current students. Students are volunteering on their own, and not as part of an approved educational experience through the PT Program.

- The organization/agency should provide some level of training for the student volunteers and should have some policies and procedures to support their volunteer program. The organization may also have insurance for volunteers.
- Students are not covered by the University for professional liability (malpractice) insurance. Students should make sure they have their own malpractice insurance to cover any potential claim, or ask whether insurance is needed or recommended. If a malpractice claim was filed by the organization/agency or by an individual/family, the student could be named in the claim and would have to provide their own defense.
- Students are not covered by the University for workers' compensation insurance. Students should have their own health insurance coverage to cover any potential injury. If a student were injured during the experience, the student would be responsible for any medical costs.
- Students assume liability and need to be very clear about what the scope of the volunteer experience or personal assistance should be, since they are not licensed to provide physical therapy.
- Students should be aware of additional safety concerns when going into an individual's home for a volunteer opportunity.

When students are unsure about what type of volunteer experience applies, they can consult with PT Program faculty or the Program Administrator, who may seek additional clarification from University Legal Counsel.

## Student Resources

This information changes frequently. Refer to campus student services for the most current information. Main website: <http://www.ucdenver.edu/anschutz/studentresources/student-assistance/Pages/default.aspx>

### *Tutoring and Writing Center*

Tutoring for Anatomy in the first semester may be available through the PT Program and provided by a course TA or lab assistant if a student is demonstrating unsatisfactory performance and has attempted other strategies offered by the course instructor, lab assistants and peer tutors.

A writing center is available to assist students with their writing skills through the Student Assistance Office <https://clas.ucdenver.edu/writing-center/locations/writing-center-cu-anschutz>. Students are responsible to be familiar with the Guidelines for Submitting Papers and the Written Paper Grading Rubric.

If faculty identify that a student would benefit from writing center services, the student will be expected to utilize the writing center services to adhere with academic and professional behavior standards.

### *Counseling*



### Personal Counseling

If a student experiences personal problems with associated distress, the following services are available:

- Call the Office of Campus Student Services regardless of whether the student does or does not have student health insurance.
- One of the associates at the Student Mental Health Service 303-724-4716 will see the student for his/her initial evaluation and will then refer the student for further counseling with an appropriate practitioner, if needed.
- The Student Health Insurance Plan may offer up to 15 counseling sessions per year; there is no co-pay.
- The student's advisor can assist him/her in obtaining counseling, if needed.

### Students with Testing Anxiety

Call the Student Mental Health Service at 303-724-4716 and ask for an appointment. After the initial appointment the student will be referred to further counseling with an appropriate practitioner, if needed. The student is encouraged to have Student Health Insurance to be seen for testing anxiety but the Student Mental Health Service will work to assist the student to see what their insurance will cover.

### **Student Health**

Any student enrolled in the PT Program is eligible for, and must purchase or waive Student Health Insurance. A waiver may only be obtained if the student can demonstrate comparable health insurance coverage. Waiver forms may be obtained at the student health office, located in Education 2 North Building, Room 3208 or online at <http://ucdenver.edu/life/services/student-health/Pages/default.aspx> Students registered for fewer than 4.9 hours must actively enroll in the insurance plan if they wish to have coverage.

Prior to matriculation all students must complete a student health immunization form and have it signed by health practitioners. This form must be submitted to the Director of Admissions. Annually while enrolled, each student must have current TB testing, provide evidence of a current hepatitis B vaccination (or arrange to obtain one at student's expense), annual flu vaccinations, and be fitted for a respiratory mask (student's expense) before s/he may participate in clinical education. Additional immunizations or procedures may be recommended or required for certain clinical sites (such as rubella in a pediatric environment, drug screens, fingerprinting etc.). It is the student's responsibility to harbor costs for these additional procedures. Students should discuss this with their Clinical Instructors prior to the start of a new clinical education experience.

Students are required to have medical documentation on file for the flu vaccination no later than November 1st of each year, effective fall 2011.

### **Campus Health Center**

Services: Behavioral/mental health care and physical health care

Hours: Mental health providers are available Monday through Friday – 9:00 a.m.-7:00 p.m. and Saturday 9:00 a.m.-1:00 p.m. (on a trial basis; check the website for current hours); walk-in hours have been specifically dedicated for student mental health care during hours of greater demand, i.e., Monday through Friday 10:00-11:00 a.m. and 3:00-4:00 p.m.

Appts: Schedule appointments at 303-724-6242; drop-ins are also welcome.

Providers: Staffed by a psychiatric nurse practitioner and a licensed clinical social worker

Location: Anschutz Health and Wellness Center, Montview and Racine, 2nd floor

Website: <https://nursing.cuanschutz.edu/patient-care/campus-health-center> (<https://nursing.cuanschutz.edu/patient-care/campus-health-center/>)

After hours, holidays, weekends: Students may call the Campus Health Center 303-724-6242, which goes directly to the Metro Nurseline after hours to help with chronic or immediate mental health issues and to facilitate a phone call to the on-call psychiatrist, if needed.

### **Student Behavioral and Mental Health**

The CU Student Wellness and Mental Health service provides comprehensive and confidential mental health services for all Anschutz Medical Campus students.

Evaluation is free regardless of insurance. The current school-sponsored insurance covers unlimited visits, which are free to students. Students with outside insurance are referred to an appropriate provider.

Student mental health services treat a variety of conditions including but not limited to: depression, anxiety/stress, bipolar disorder, drug and alcohol dependence, eating disorders, marital difficulties, family crises, and post-traumatic stress disorder are seen. Treatment may include individual psychotherapy, couples counseling, and/or medication. Students have the option of choosing on-going treatment with professionals on the Anschutz Campus or private practitioners in the local community.

All visits and referrals are entirely confidential. Faculty members do not know whether students have sought or received assistance unless students chose to disclose.

Students do not have to wait long for an appointment – initial visits are usually made within a few days after the student calls. Same day and emergency appointments are also available. 24/7 emergency coverage is available: For emergencies after-hours and on weekends/holidays call 720-848-0000, identify yourself as an Anschutz Medical Campus student, and ask for the psychiatrist on-call.

For questions, or to make an appointment, call 303-724-4716. You can also contact [SMHservice@ucdenver.edu](mailto:SMHservice@ucdenver.edu) to request an appointment. Main office: Building 500 <https://medschool.cuanschutz.edu/psychiatry/PatientCare/amc-student-mental-health> (<https://medschool.cuanschutz.edu/psychiatry/PatientCare/amc-student-mental-health/>)

### ***Behavioral/Mental Health Services for Students***

Mental and behavioral health resources for CU Anschutz students are available at the Campus Health Center and Student Mental Health. Students are welcome to use either service to receive behavioral/mental health care.

Student health insurance and many other insurance plans are accepted for:

- Acute stress management (including anxiety or depression)
- Counseling or triage, assessment, treatment or referral of mental health disorders such as bipolar disorder, drug, alcohol or eating disorders, post- traumatic stress disorder
- Medication prescription, monitoring and support
- Domestic violence, sexual assault, trauma (in coordination with the Advocacy and Support Center)
- Mindfulness, testing anxiety, and time management
- On-site psychological testing for learning issues by Student Mental Health
- Options for referral to community providers if preferred by student or covered by certain insurance plans

### ***RESOURCES***

#### ***Campus Health Center***

Services: Behavioral/mental health care and physical health care

Hours: Mental health providers are available Monday through Friday – 9:00 a.m.-7:00 p.m. and Saturday 9:00 a.m.-1:00 p.m. (on a trial basis; check the website for current hours); walk-in hours have been specifically dedicated for student mental health care during hours of greater demand, i.e., Monday through Friday 10:00-11:00 a.m. and 3:00-4:00 p.m.

Appts: Schedule appointments at 303-724-6242; drop-ins are also welcome.

Providers: Staffed by a psychiatric nurse practitioner and a licensed clinical social worker

Location: Anschutz Health and Wellness Center, Montview and Racine, 2nd floor

Website: <https://nursing.cuanschutz.edu/patient-care/campus-health-center>

After hours, holidays, weekends: Students may call the Campus Health Center (303-724-6242), which goes directly to the Metro Nurseline after hours to help with chronic or immediate mental health issues and to facilitate a phone call to the on-call psychiatrist, if needed.

#### ***Student Mental Health Service***

Services: Behavioral/mental health care

Hours: Mental health providers are available Monday through Friday 9:00 a.m.-5:00 p.m.

Appts.: Schedule appointments at 303-724-4716.

Providers: Staffed by two psychiatrists, a nurse practitioner, a licensed clinical social worker, and a psychologist (for psychoeducational testing)

Location: Building 500, 17th Avenue and Aurora Court, 2nd floor, #E2343

Website: <https://nursing.cuanschutz.edu/patient-care/campus-health-center>

After-hours, holidays, weekends: Students may call the University of Colorado Hospital (UCH) operator at 720-848-0000 directly, identify yourself as a CU Anschutz student and ask to speak with the on-call psychiatrist, or go to the UCH ER.

Campus Assessment, Response and Evaluation Team (CARE Team)

Services: Behavioral/crisis situations/student safety

Hours: Mental health providers are available Monday through Friday 9:00 a.m.-5:00 p.m.

Appts.: Report non-urgent behaviors/concerns at [www.ucdenver.edu/CARE](http://www.ucdenver.edu/CARE) or call 303-352-3579; or email [shareaconcern@ucdenver.edu](mailto:shareaconcern@ucdenver.edu)

Providers: Staffed by a Student Behavior Case Manager, Conduct Representative, Law Enforcement Representative and Mental Health Expert

Website: <https://nursing.cuanschutz.edu/patient-care/campus-health-center> (<https://nursing.cuanschutz.edu/patient-care/campus-health-center/>)

After-hours, holidays, weekends: To report a student in immediate distress, who is threatening or appears to be exhibiting unusual behaviors call 911 or campus police at 303-724-4444.

EMERGENCIES: Call 911 or go to your closest Emergency Department.

## Safety and Security

### *University Police Department: Safety and Security Information*

The University Police Department for CU provides security and access control over AMC. For emergencies, call 911 from any campus phone or 303-724-4444. The main telephone number for the Police Department is 303-724-2000.

### *Blue Light Poles*

Blue Light poles are located outdoors throughout the AMC and may be used to summon assistance. The push button on the pole dials directly to the AMC University Police Department. The dispatcher will answer on the speaker and you must respond to the dispatcher. Unless circumstances prevent it, stay by the pole. The goal is to ensure that there are two Blue Light poles in view from anywhere on the campus.

### *Emergency Service Telephones*

At elevators on the AMC are red telephones. The AMC police department is available from any of these devices by pressing the call button, dialing 911 or 44444.

These red phones can be used to contact the police at 911 or 44444, dial any extension on the campuses and (after dialing 9) outside calls. They will not call long distance and will not receive incoming calls.

### *Elevator Call Buttons*

Every elevator has a call button on the control panel. These buttons are actually direct lines to the University Police Department. The dispatcher will answer you through the speaker inside the elevator.

The University Police Department provides additional information, safety classes, workplace violence, R.A.D. training (self-defense for men and women), workplace security assessment and more. They can be reached at 303-724-2000 24 hours a day 7 days a week. Additional information is available at: <https://www.cuanschutz.edu/police>

### *Physical Therapy Service for Students as Patients*

In order to assure fair and equitable assessment of students, neither physical therapy faculty members nor consultants who may be involved in grading are allowed to provide physical therapy examination/intervention to students as patients. Students may choose to consult with faculty members regarding recommendations for providers of service that meet their needs.

### *Adverse Incidents Involving Students*

The mission of risk management/loss avoidance programs is to save lives, prevent injuries and protect the health and safety of all employees, students, and visitors. While students must use their own health insurance if injured while not on clinical experience, they are nonetheless encouraged to complete an incident report if an injury occurs within class or on the premises of the Anschutz Medical Campus.

Report forms can be found online at <https://www.cu.edu/risk/>. If an incident occurs during clinic, refer to the Student Clinical Education manual.

## Student Officers and Class Governance

PT Program, University and Professional Committees (See appendix for committees and officers including descriptions)

**Student Officers Elections**

During the first summer semester, the faculty class advisor will review the descriptions of class offices with the class. Each class will hold annual elections, monitored by their respective faculty class advisor. Elections will be held before finals week of summer semester or within the first two weeks of fall semester if there is a reason for the delay. If an officer role includes the need to handle cash on behalf of the class, s/he must also be a student employee.

**Physical Therapy Program Awards**

Awards and scholarships are available for students:

<https://medschool.cuanschutz.edu/physical-therapy-program/education-programs/doctor-of-physical-therapy/scholarships>

**Graduation-Related Considerations****Exit Interviews**

An exit survey is distributed to all students prior to graduation. An option for students to participate in a small group exit interview is also conducted prior to graduation. It is a program expectation that students participate in the survey as they are instrumental to the Program.

**Graduation Registration**

Students are responsible to respond in a timely manner to email communications regarding graduation registrations and activities.

**Pre-Graduation Information**

Prior to graduation, graduate candidates must complete a form to advise the Program of new mailing addresses and places of employment. This information is used for the Program's accreditation processes, to help with alumni tracking, as well as to contact alumni with upcoming events. It is greatly appreciated for alumni to update contact information, post-graduation.

**Preparation to Take the National Physical Therapy Licensing Examination**

The National Physical Therapy Exam (NPTE) is administered by the Federation of State Boards of Physical Therapy (FSBPT). All students are registered with FSBPT by the PT Program in their first summer semester. The student is responsible for claiming their account through FSBPT.

All instructions to apply for an initial state license and to register for the NPTE can be found at: <https://www.fsbpt.org/Secondary-Pages/Exam-Candidates>

Exam processes and dates can be found at: <https://www.fsbpt.org/Secondary-Pages/Exam-Candidates/National-Exam-NPTE>

A full list of all states and the requirements for licensure is available on the FSBPT website: <https://www.fsbpt.net/lrg/Home/LicensureByExamRequirement>

This tool defines the process towards licensure: <https://pt.fsbpt.net/UserJourneyMap>

Students who are seeking initial licensure in Colorado will find the application information at: <https://dpo.colorado.gov/PhysicalTherapy/Applications>

Students are responsible for requesting official transcripts from the University of Colorado Anschutz Medical Campus Registrar: <http://www.ucdenver.edu/anschutz/studentresources/Registrar/PlanYourDegree/Pages/Transcripts.aspx>

Information on the licensure Compact can be found at: <https://www.fsbpt.org/Free-Resources/Physical-Therapy-Licensure-Compact>

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*Program Director, CU Physical Therapy Program*

*Associate Dean, Physical Therapy Education SOM*

*Joanne Posner-Mayer Endowed Chair in Physical Therapy*

*Health Scientist, Geriatric Research, Education and Clinical Center (GRECC), VA Eastern Colorado Health Care System*

*Director, Muscle Morphology, Mechanics, and Performance Laboratory*

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## Learning Outcomes

### Doctor of Physical Therapy Learning Outcomes

Student Learning Outcomes for the DPT Program are founded on 5 Curricular Elements: 1) Patient-Centered Care, 2) Clinical Reasoning and Evidence Based Practice, 3) Movement for Participation, 4) Teamwork and Collaboration, and 5) Quality Improvement and Safety. Specifically, the learning outcomes are that all (100%) of program graduates and their employers will be competent in:

1. Delivery of patient-centered clinical care.
2. Clinical reasoning and decision-making.
3. Applying foundational science knowledge to clinical care to promote patient/population movement for life participation.
4. Applying principles of teamwork and collaboration within healthcare systems.
5. Providing quality patient-centered health care that is safe, effective, ethical, equitable, and takes cost into account.

## Physician Assistant Studies (MPAS)

### Contact Info

#### University of Colorado PA Program

Mail Stop F543

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Aurora, Colorado 80045

Phone: (303) 724-7963

Fax: (303) 724-1350

PA-info@ucdenver.edu

### OFFICE HOURS

Monday - Thursday, 7:30 a.m. – 4:00 p.m.

Friday, 7:30 a.m. – 3:00 p.m.

### CHA/PA Program Overview

The three-year, innovative curriculum of the University of Colorado PA program is designed to integrate clinical and basic sciences to prepare graduates with the knowledge, skills, and attitudes to practice medicine as part of the health care team. Graduates practice in all areas of medicine and serve patients of all ages.

### Welcome from the Director

Welcome to the University of Colorado Child Health Associate/Physician Assistant (CHA/PA) Program. I invite you to explore our website to learn more about our program and students. You will see that we are unique among Physician Assistant programs in terms of our curriculum and courses. We are proud to be a part of this dynamic educational program that is consistently among the top-ranked programs according to US News and World Report.

Over the past 50 years, over 1,200 CHA/PA graduates have entered the workforce. CHA/PA alumni can be found throughout Colorado and across the United States, practicing in a wide variety of primary and specialty care settings.

The program is also recognized for its unique educational value and comprehensive physician assistant training. Costs for our three-year program for both in-state and out-of-state students are lower or comparable to most two-year training experiences. In 2018, we launched the Colorado Curriculum. Based on current research in learning theory, this curriculum is designed to support learner mastery of the complex concepts of patient care. In addition to our extensive adult curriculum and integrated clinical training across all three years, we offer additional training in pediatric medicine and behavioral health as well as track options in rural and global health.

We are proud of our program and fortunate to be at the heart of a vibrant and growing health sciences center. The Anschutz Medical Campus has

state-of-the-art hospitals, research centers, and nationally recognized health professional schools. Our campus was also built with a vision of interprofessional education; through our longitudinal interprofessional training curriculum, we are working together to prepare all our learners for team-based practice models of the future.

Thanks for your interest and I hope to see you on campus.

Jonathan Bowser

CHA/PA Program Director

Associate Dean of Physician Assistant Studies

Associate Professor, Section Head of Pediatrics

### Newsletter

Would you like to receive our newsletter? It is sent quarterly to all those interested in CHA/PA. E-mail PA-info@ucdenver.edu to sign up.

## Admission Requirements

The 2022-23 admission cycle will open late spring 2022. The deadline for the CASPA and supplemental applications is **September 1**.

The CASPA application needs to be complete (not verified) by September 1 to meet the deadline. CHA/PA has rolling admissions.

### Required Materials

1. Verified CASPA application including three letters of recommendation.
  2. CHA/PA Program supplemental application and a nonrefundable \$55 supplemental application fee. The supplemental application for the 2022-23 admission cycle will be available mid-May 2022.
  3. CASPer is required for all applicants. CASPer is an online, video-scenario based, situational judgement test that assesses non-cognitive attributes. Results are valid for one admissions cycle. CASPer dates are posted each year on the CASPer website in mid-March. You will be required to enter your CASPA ID for the CASPer assessment.
- **Neither the GRE nor the PA-CAT is required.**
  - **We only review your CASPer score. We do not require or review the CASPer Snapshot.**

Note that all applicants are required to submit verification of COVID vaccination and COVID booster in order to interview.

*Please be sure to make the following e-mail addresses safe to receive in your e-mail account: kay.denler@cuanschutz.edu, nicole.giovannoni@cuanschutz.edu, PA-Info@ucdenver.edu, and caspal@caspa.org. You should also check your Spam or Junk mail folders periodically to be sure that e-mails from CHA/PA and CASPA are received.*

## CHA/PA Program Admissions Process

The University of Colorado PA Program is a participant in CASPA (Centralized Application Service for PAs). To apply to our program,

applicants must complete the CASPA application and a CHA/PA supplemental application.

The selection process for the PA Program is highly competitive. Potential applicants must demonstrate adequate preparedness to undertake the rigorous, accelerated program curriculum. Completion of prerequisite coursework, strength of the academic record, essays, letters of recommendation and interviews are all strongly considered in the admissions process. Positions are offered to applicants who appear to be the most highly qualified to meet the mission and goals of the program in terms of academic potential and previous achievement, character, motivation and understanding of the profession, and life experience. Invitations for interviews are extended to competitive applicants who appear to have a good chance of being accepted to the program. Applicants may not be accepted without an in-person interview. We will attempt to accommodate special interview scheduling requests, however, this is not guaranteed.

Applications are considered once all required materials are received by the program. Early submission of materials is highly encouraged as the program offers a rolling admissions process with interviews beginning in September. Offers of acceptance are made on a continual basis until the class is filled. Generally, admissions decisions are made by early spring. Forty-four positions are offered annually.

Some candidates for the PA Program may be offered a position as an alternate. Alternates not admitted to the program must reapply the next year. Each applicant offered a position in the class, must acknowledge acceptance or decline no later than the prescribed time in the acceptance letter, generally 10 business days. A nonrefundable tuition deposit of \$1,000 must accompany the acceptance.

Final acceptance is contingent upon passing a criminal background investigation and receipt of final transcripts for all outstanding prerequisites. All students must meet the technical standards of the PA Program to be considered for admission.

CHA/PA is committed to providing equitable access to learning opportunities for all students, including those with disabilities (e.g., mental health, attentional, learning, chronic health, sensory, or physical) who meet the technical standards of the program, with or without reasonable accommodations. If you are an applicant with a disability who would like to engage in a confidential consultation about disability access at CU Anschutz, or who requires accommodations to complete the application or interview process, please contact The Office of Disability, Access & Inclusion (<https://www.cuanschutz.edu/offices/office-of-disability-access-and-inclusion/>).

## Prerequisites

Additional information is available via the prerequisite section of the admissions website (<https://medschool.cuanschutz.edu/physician-assistant-program/prospective-students/prerequisites/>).

## General Information

1. All prerequisites must be completed at a regionally accredited college or university. We accept courses from schools accredited by the Middle States Association (MS), North Central Association (NC), New England Association (NE), North West Association (NW), Southern Association (SA), and Western States Association (WS). Community college courses are generally acceptable for lower division coursework requirements.
2. To be considered for admission, applicants must have a minimum cumulative and science GPA of 3.0 on a scale of 4.0. Applicants who are offered interviews commonly have cumulative and science GPAs

in the higher range. See our Admission Statistics webpage for full details on average GPAs of accepted students. Applicants with GPAs of less than 3.0 for either the cumulative or science GPA will not be considered.

3. A Baccalaureate degree from an accredited institution is required to be completed prior to matriculation to the program. Applicants from all academic disciplines are welcome to apply, provided they meet the prerequisite course requirements.

*Note: Health care experience is not required.*

## Course Requirements

- All prerequisite courses must have a grade of "C" or higher to be accepted. Pass/Fail grades are not accepted toward prerequisite courses.
- We will accept Pass/Fail grades for Spring 2020 and Summer 2020 courses only. Letter grades are strongly preferred.
- Online courses and labs are accepted.
- Advanced Placement credit (AP) or International Baccalaureate (IB) credit are not accepted to fulfill the prerequisite course requirements.
- Research, thesis, teaching assistant, independent studies, and experiential courses are also not accepted to fulfill prerequisite courses. Students must request approval to use any courses with general titles such as "Special Topics of Biology", "Senior Seminar", or "Techniques of Biological Science" toward the BIO prerequisite coursework.
- See the FAQ section for information on nutrition courses and courses offered in the Health Science department.
- Use the Prerequisite Worksheet to determine what courses you have completed and what courses are yet to be completed.
- If you are doing undergraduate work in Colorado or Wyoming, see our list of advisors who may be able to assist you in course planning.

## Coursework taken outside of the United States

### International students and students with credits from outside of the United States (including foreign medical graduates)

The following are required of international students or students receiving degrees outside of the United States:

1. All prerequisite requirements as prescribed on the website. Science prerequisites must be completed at a college or university in the United States. Science courses completed at Canadian Institutions will be evaluated on an individual basis.
2. Transcripts: Only accepted students need to submit WES evaluations. If an accepted student studied abroad for a semester or longer and the study abroad program was not affiliated with a US school or program of study that provides credits and grades according to the US system, he/she must submit official foreign transcript reports from World Education Services ([www.WES.org](http://www.WES.org)). The service may take several weeks to process your foreign transcript. If an applicant studied abroad by a sponsoring US sending school and the credits and grades for that study appear on the US sending school transcript, and are included in the number of total credits and the cum GPA, a WES evaluation is not required. An official copy of the transcript and official transcript evaluation must be mailed from the evaluating agency directly to the CHA/PA Program. The transcript must be in English. The World Evaluation Services organization at [www.wes.org](http://www.wes.org) is the preferred evaluation organization.
3. English Proficiency Testing: Students whose native language is not English or who have not completed a degree at an institution where English was the language of instruction must demonstrate

language proficiency by submitting scores on the Test of English as a Foreign Language (TOEFL) given by the Education Testing Service ([www.ets.org](http://www.ets.org)). The following minimum TOEFL scores are required for consideration of admission to the UCDHSC Child Health Associate/Physician Assistant Program:

- Internet Based Testing (iBT): 85 with a minimum of 20 in each section
- Computer Based Testing (CBT): 230 or higher
- Paper Based Testing (PBT): 570 or higher

### Study Abroad Courses

Study abroad is defined as courses that are taken through a foreign institution while the student is currently enrolled at a U.S. institution. If you have attended a study abroad program sponsored by a U.S. institution and all courses, hours and grades appear on the U.S. transcripts, these courses should be entered as instructed on the CASPA application. We do not require transcript evaluation for these courses. For courses taken at a foreign institution that do not appear on the student's U.S. transcript, a WES evaluation is required if the student is accepted.

### Interprofessional Education and Tracks

Educational content is enhanced through the applications of family-centered care, behavioral and psychosocial perspectives as well as social and community initiatives for health and wellness. The program has integrated content in public health, oral health, professionalism, and interprofessional education (<https://www.cuanschutz.edu/centers/IPE/>). Students with a personal area of interest may also have the opportunity to participate in specialized tracks to enhance learning in Rural, Global Health, and Pediatric Critical and Acute Care.

### Clinical Experience and Affiliates

The curriculum includes a fully integrated clinical curriculum across all three years with clinical rotations in the hospital and community settings. During clinical experiences, students participate in history-taking, physical examination and assessment, development of a differential diagnosis and clinical decision-making and planning of treatments and interventions. Students work closely with preceptors and other members of the health care team and are evaluated on skills and competencies required for patient care.

As a part of the University of Colorado School of Medicine, the faculty of the entire school of medicine and affiliates contribute greatly to the quality of the learning experiences provided at the CHA/PA Program. Affiliations with the University of Colorado Hospital, Children's Hospital Colorado, and Denver Health and Hospitals in addition to community centers and clinics provide a network of clinical rotations to enhance the training of students. The faculty within the departments of Pediatrics, Family Medicine, Internal Medicine, Surgery, and others regularly participate in both classroom and clinical training of the CHA/PA Program students.

### Degree

The University of Colorado PA Program has gained national recognition for its curriculum in primary care medicine. The Program confers a Professional Master's Degree (MPAS). In accordance with the mission of the program, the CHA/PA Program curriculum provides comprehensive physician assistant education in primary medical care with additional training in pediatrics and the need for service to disadvantaged, at risk and medically underserved populations. There are specific requirements that all students must complete to receive the MPAS degree from our fully accredited PA Program. Graduates are well prepared to perform

in primary care practice with patients across the lifespan. Historically our students have performed above the national average in score and passing rate on the National Commission on Certification of Physician Assistants (NCCPA) examinations.

Graduation and awarding of the Masters of Physician Assistant Studies is based upon the following requirements:

- Successful completion of all coursework and rotations of the University of Colorado PA Program
- Exhibiting professionalism throughout the course of study
- Successful completion of the Comprehensive Clinical Knowledge and Clinical Skills Examinations

## Degree Requirements Year 1

Course	Title	Hours
<b>Year 1</b>		
<b>Summer</b>		
MPAS 5000	Summer Immersion	10
<b>Hours</b>		<b>10</b>
<b>Total Hours</b>		<b>10</b>

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
MPAS 5001	Hematology, Infection, Inflammation and Malignancy I	4
MPAS 5002	Gastrointestinal, Genitourinary and Renal I	5
MPAS 5003	Cardiovascular and Pulmonary I	5
MPAS 5020	Clinical Skills I	3
MPAS 5030	Foundations in Prevention, Advocacy and Prof Practice	2
MPAS 5050	Clinical Experiences I	4
MPAS 5983	Global Health Track Elective I - 1st Year	1
<b>Hours</b>		<b>24</b>

<b>Spring</b>		
MPAS 5004	Dermatology and HEENT I	4
MPAS 5005	Musculoskeletal and Neurology I	4
MPAS 5006	Endocrinology and Reproduction I	4
MPAS 5007	Psychiatry I	3
MPAS 5021	Clinical Skills II	3
MPAS 5031	Foundations in Prevention, Advocacy and Prof Practice	2
MPAS 5051	Community Clinic I	2
MPAS 5911	Pediatric Critical and Acute Care --1st year	2
MPAS 5944	Care of Hospitalized Adults - 1st Year	2
MPAS 5984	Global Health Track Elective II - 1st Year	1
IPCP 5000	Interprofessional Collaborative Practice	1
<b>Hours</b>		<b>28</b>
<b>Total Hours</b>		<b>52</b>



## Year 2

Course	Title	Hours
<b>Year 2</b>		
<b>Summer</b>		
MPAS 6051	Community Clinic I	2
MPAS 6052	Community Clinic II	2
MPAS 6671	Guatemala Clinical Immersion Experience I	2
MPAS 6672	Guatemala Immersion I for Global Health Track	2
MPAS 6680	Track Elective Experience I– 2 Weeks	2
MPAS 6689	Track Elective Experience II– 4 Weeks	3
<b>Hours</b>		<b>13</b>

**Total Hours 13**

Course	Title	Hours
<b>Year 2</b>		
All Semesters:		
MPAS 6640	Emergency Medicine Preceptorship	2
MPAS 6670	Women's Health Preceptorship	2
<b>Hours</b>		<b>4</b>

<b>Fall</b>		
MPAS 6001	Hematology, Infection, Inflammation and Malignancy II	4
MPAS 6002	Gastrointestinal, Genitourinary, and Renal II	5
MPAS 6003	Cardiovascular and Pulmonary II	5
MPAS 6020	Clinical Skills III	3
MPAS 6030	Foundations in Prevention, Advocacy and Prof Practice	2
MPAS 6051	Community Clinic I	2
MPAS 6052	Community Clinic II	2
MPAS 6053	Community Clinic III	2
MPAS 6612	Pediatric Critical and Acute Care –2nd year	2
MPAS 6644	Care of Hospitalized Adults - 2nd Year	2
MPAS 6673	Global Health Track Elective 1 - 2nd Year	1
IPHE 6000	IPE Healthcare Ethics & Health Equity	1
<b>Hours</b>		<b>31</b>

<b>Spring</b>		
MPAS 6004	Dermatology and HEENT II	4
MPAS 6005	Musculoskeletal and Neurology II	4
MPAS 6006	Endocrinology and Reproduction II	4
MPAS 6007	Psychiatry II	3
MPAS 6021	Clinical Skills IV	3
MPAS 6031	Foundations in Prevention, Advocacy and Prof Practice	2
MPAS 6052	Community Clinic II	2
MPAS 6053	Community Clinic III	2
MPAS 6054	Community Clinic IV	2
<b>Hours</b>		<b>26</b>
<b>Total Hours</b>		<b>61</b>

## Year 3

Code	Title	Hours
All Semesters:		
MPAS 6905	MPAS 6905 - Surgery	4
MPAS 6913	Pediatric Critical and Acute Care—3rd year	4
MPAS 6920	Neonatology	4
MPAS 6930	Primary Care I	4
MPAS 6932	Academic Inpatient Pediatric Medicine	4
MPAS 6936	Pediatric Elective II - Four Week Rotation (Sec I, II, III, IV)	4
MPAS 6938	Adolescent Medicine	4
MPAS 6940	Primary Care II	4
MPAS 6942	Inpatient Adult Medicine	4
MPAS 6944	Care of Hospitalized Adults	4
MPAS 6947	Primary Care III	4
MPAS 6948	Emergency Medicine	4
MPAS 6952	Rural Track Family Medicine (Sec I, II, III)	4
MPAS 6970	Adult Elective II - 4-week Rotation (Sec I, II, III, IV)	4
MPAS 6971	Guatemala Clinical Immersion Experience II	4
MPAS 6972	Guatemala Immersion II for Global Health Track	4
MPAS 6974	Primary Care IV	4
MPAS 6975	Behavioral & Mental Health	4
MPAS 6978	Clinical Connections I	1
MPAS 6979	Clinical Connections II	1
MPAS 6983	Global Health Track Elective I - 3rd Year	4
MPAS 6985	Global Health & Disasters	2

### MPAS 5000 - Summer Immersion (10 Credits)

This first year course is designed to introduce learners to the Anschutz Medical Campus, fundamentals of learning strategies, PA professional roles, wellness and resilience and the clinical presentation curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

### MPAS 5001 - Hematology, Infection, Inflammation and Malignancy I (4 Credits)

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with hematologic, infection, inflammation and malignancy conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

### MPAS 5002 - Gastrointestinal, Genitourinary and Renal I (5 Credits)

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with gastrointestinal, genitourinary and renal conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5003 - Cardiovascular and Pulmonary I (5 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with cardiovascular and pulmonary conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5004 - Dermatology and HEENT I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with dermatologic, head, ears, eyes, nose, and throat conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5005 - Musculoskeletal and Neurology I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with musculoskeletal and neurologic conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5006 - Endocrinology and Reproduction I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with endocrine and reproductive conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5007 - Psychiatry I (3 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with psychiatric conditions.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5020 - Clinical Skills I (3 Credits)**

Learners will be engaged in a first-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5021 - Clinical Skills II (3 Credits)**

Learners will be engaged in a first-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation. This is a continuation of MPAS 5020.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5030 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a first-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5031 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a first-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5050 - Clinical Experiences I (4 Credits)**

Learners will be engaged in a preparatory course that provides a fundamental orientation to the clinical environment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5051 - Community Clinic I (2 Credits)**

Clinical experience designed to give the student an introduction to ambulatory medicine and an understanding of pediatric and family practice medicine.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5911 - Pediatric Critical and Acute Care –1st year (2 Credits)**

Clinical experience designed to give the student an introduction to pediatric critical and acute care and pediatric inpatient medicine. Restricted to CHA/PA students. Students must complete application process and be accepted before enrollment. Pre-requisite: Students must complete application process and be accepted before enrollment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5944 - Care of Hospitalized Adults - 1st Year (2 Credits)**

Clinical experience designed to give the student an introduction to hospitalized adult inpatient medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 5951 - CHA/PA Independent Study I - 1st year (1 Credit)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 16 hours during the semester they are enrolled. Restricted to CHA/PA students:

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 5952 - CHA/PA Independent Study II - 1st Year (2 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 32 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 5953 - CHA/PA Independent Study III - 1st Year (3 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 48 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 5983 - Global Health Track Elective I - 1st Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5984 - Global Health Track Elective II - 1st Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5985 - Rural Health Track Elective I - 1st Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5986 - Rural Health Track Elective II - 1st year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 6001 - Hematology, Infection, Inflammation and Malignancy II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with hematologic, infection, inflammation and malignancy conditions.

Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6002 - Gastrointestinal, Genitourinary, and Renal II (5 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with gastrointestinal, genitourinary and renal conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6003 - Cardiovascular and Pulmonary II (5 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with cardiovascular and pulmonary conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6004 - Dermatology and HEENT II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with dermatologic, head, ears, eyes, nose and throat conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6005 - Musculoskeletal and Neurology II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for presenting with musculoskeletal and neurologic conditions. Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6006 - Endocrinology and Reproduction II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for presenting with endocrine and reproductive conditions. Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6007 - Psychiatry II (3 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with psychiatric and behavioral health conditions. Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6020 - Clinical Skills III (3 Credits)**

Learners will be engaged in a second-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6021 - Clinical Skills IV (3 Credits)**

Learners will be engaged in a second-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation. This is a continuation of MPAS 6020.

Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6030 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a second-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6031 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a second-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6051 - Community Clinic I (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6052 - Community Clinic II (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6053 - Community Clinic III (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6054 - Community Clinic IV (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6612 - Pediatric Critical and Acute Care –2nd year (2 Credits)**

Students will develop assessment and patient management skills in care of pediatric patients in critical and acute care and inpatient settings.

Restricted to CHA/PA students. Students must complete application process and be accepted before enrollment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring.

**MPAS 6640 - Emergency Medicine Preceptorship (2 Credits)**

Students will develop assessment and patient management skills in care of patients in emergency medicine settings. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6644 - Care of Hospitalized Adults - 2nd Year (2 Credits)**

Clinical experience designed to give the student an introduction to hospitalized adult inpatient medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6651 - CHA/PA Independent Study I - 2nd Year (1 Credit)**

This course is offered to those students that are pursuing an independent course of study for 16 hours during the semester they are enrolled.

Restrictions: Restricted to CHA/PA students; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6652 - CHA/PA Independent Study II - 2nd Year (2 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 32 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6653 - CHA/PA Independent Study III - 2nd Year (3 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 48 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6670 - Women's Health Preceptorship (2 Credits)**

Students will develop assessment and patient management skills in women's health under the supervision of community clinical preceptors. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6671 - Guatemala Clinical Immersion Experience I (2 Credits)**

Two-week Spanish language immersion experience followed by a two-week primary care experience in the country of Guatemala. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

MPAS 6672 - Guatemala Immersion I for Global Health Track (2 Credits)  
Two-week Spanish language immersion experience followed by a two-week clinic experience in the country of Guatemala. for fulfillment of Global Health Track requirements. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

MPAS 6673 - Global Health Track Elective 1 - 2nd Year (1 Credit)  
Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

MPAS 6675 - Rural Health Track Elective I - 2nd Year (1 Credit)  
Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

MPAS 6676 - Rural Health Track Elective II - 2nd Year (1 Credit)  
Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

MPAS 6677 - Urban Underserved Health Track Elective I - 2nd year (1 Credit)

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

MPAS 6678 - Urban Underserved Health Track Elective II - 2nd year (1 Credit)

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

MPAS 6680 - Track Elective Experience I— 2 Weeks (2 Credits)

2 week experiential learning opportunity associated with interprofessional track area of interest. Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty. Prerequisite: Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

MPAS 6688 - Rural Track Immersion Experience (0 Credits)

2 week experiential learning opportunity associated with interprofessional rural track. Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty. Prerequisites: Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

MPAS 6689 - Track Elective Experience II— 4 Weeks (3 Credits)

4 week experiential learning opportunity associated with interprofessional track area of interest. Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty. Prerequisites: Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

MPAS 6699 - 2nd Year Clinical Experience Elective (2 Credits)

An elective clinical experience for 2nd year Physician Assistant students.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

MPAS 6905 - Surgery (4 Credits)

Students will learn clinical skills for pre-operative, intra-operative and post-operative surgical medicine. This will include history taking, physical diagnosis, assessment and patient management. Students will observe or participate in surgical procedures under the supervision of community clinical preceptors.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

MPAS 6913 - Pediatric Critical and Acute Care—3rd year (4 Credits)

This course involves active participation as a member of the critical and acute care or inpatient team in a pediatric teaching hospital. Restricted to CHA/PA students. Students must complete application process and be accepted before enrollment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.



**MPAS 6920 - Neonatology (4 Credits)**

This course involves active participation in the care of neonates in a teaching hospital. Attendance at morning rounds, making case presentations and participating in the night and weekend call schedule are required. Students are encouraged to attend deliveries and perform circumcisions and other procedures with appropriate supervision.

Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6930 - Primary Care I (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 43.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6932 - Academic Inpatient Pediatric Medicine (4 Credits)**

This course involves active participation as a member of the housestaff pediatric inpatient team in a teaching hospital. Attendance at morning rounds, making case presentations and participating in the night and weekend call schedule are required. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6936 - Pediatric Elective II - Four Week Rotation (Sec I, II, III, IV) (4 Credits)**

This clinical experience involves active participation in a specialty area of pediatric medicine for 4 weeks. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 43.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6938 - Adolescent Medicine (4 Credits)**

This course involves active participation in the care of patients in a clinical setting specializing in adolescent medicine, with an emphasis on the medical, psychosocial, developmental, educational and sexual issues that are unique to adolescents. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6940 - Primary Care II (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6942 - Inpatient Adult Medicine (4 Credits)**

This course involves active participation as a member of the house-staff inpatient team in a teaching hospital. Attendance at morning rounds, making case presentations and participating in the night and weekend call schedule are required. Restrictions: Restricted to CHA/PA Students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6944 - Care of Hospitalized Adults (4 Credits)**

Clinical experience designed to give the student an introduction to hospitalized adult inpatient medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6947 - Primary Care III (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6948 - Emergency Medicine (4 Credits)**

The course involves active participation in an emergency department or urgent care practice. Attendance at meetings, conferences, and participating in the night and weekend call schedule are required.

Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6952 - Rural Track Family Medicine (Sec I, II, III) (4 Credits)**

This block is comprised of three sections which must be completed in sequence in a single family medicine practice located in rural Colorado.

The sequence involves participation in the care of patients in a family medicine setting, including health maintenance, diagnosis and treatment, patient education and follow-up for patients of all ages. Restrictions:

Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6970 - Adult Elective II - 4-week Rotation (Sec I, II, III, IV) (4 Credits)**

This clinical experience involves active participation in a specialty area of adult medicine for 4 weeks. Restrictions: Course restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6971 - Guatemala Clinical Immersion Experience II (4 Credits)**

Four week clinic experience in the country of Guatemala. Requisite:

Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6972 - Guatemala Immersion II for Global Health Track (4 Credits)**

Four-week rotation in the country of Guatemala in fulfillment of Global Health Track Requirement

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6974 - Primary Care IV (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6975 - Behavioral & Mental Health (4 Credits)**

Course involves participation in the care of patients in a behavioral or mental health setting. Prerequisite: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring.

**MPAS 6978 - Clinical Connections I (1 Credit)**

This course involves clinical preparation modules, courses, workshops and practice activities.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6979 - Clinical Connections II (1 Credit)**

This course is a continuation of MPAS 6978.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6980 - Third Year Clinical Seminar (2 Credits)**

Third year clinical affords students the opportunity to present a patient encounter using multimedia technology and evidence-based research.

This forum will encourage discussion of a vast array of medical conditions. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6983 - Global Health Track Elective I - 3rd Year (4 Credits)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6985 - Global Health & Disasters (2 Credits)**

This course prepares its participants for international experiences and future global health work. This is an interactive training course which incorporates readings, lectures, small group problem based learning exercises, technical skill sessions and a disaster simulation exercise. Requisites: Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 6987 - Urban Underserved Health Track Elective - 3rd year (4 Credits)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6991 - CHA/PA Independent Study I - 3rd year (1 Credit)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 16 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6992 - CHA/PA Independent Study II - 3rd Year (2 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 32 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6993 - CHA/PA Independent Study III - 3rd Year (3 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 48 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 3.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

## Student Resources

CHAPA Student Academic Policies and Procedures AY2019-2020 - Class of 2020 ([https://medschool.cuanschutz.edu/docs/librariesprovider92/default-document-library/chapa-student-academic-policies-and-procedures-ay2019-2020---class-of-2020.pdf?sfvrsn=90fe3fb9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider92/default-document-library/chapa-student-academic-policies-and-procedures-ay2019-2020---class-of-2020.pdf?sfvrsn=90fe3fb9_2))

CHAPA Student Academic Policies and Procedures AY2019-2020 - Class of 2021 and 2022 ([https://medschool.cuanschutz.edu/docs/librariesprovider92/default-document-library/chapa-student-academic-policies-and-procedures-ay2019-2020---class-of-2021-and-2022.pdf?sfvrsn=2efe3fb9\\_2](https://medschool.cuanschutz.edu/docs/librariesprovider92/default-document-library/chapa-student-academic-policies-and-procedures-ay2019-2020---class-of-2021-and-2022.pdf?sfvrsn=2efe3fb9_2))

CHAPA Student Academic Policies and Procedures AY2020-2021 ([https://medschool.cuanschutz.edu/docs/librariesprovider92/default-document-library/chapa-student-academic-policies-and-procedures-ay2020-2021-final.pdf?sfvrsn=c35a11b9\\_0](https://medschool.cuanschutz.edu/docs/librariesprovider92/default-document-library/chapa-student-academic-policies-and-procedures-ay2020-2021-final.pdf?sfvrsn=c35a11b9_0)) - **effective 6/1/20**

## CHA/PA Faculty and Staff

**Jonathan M. Bowser, MS, PA-C**, Program Director, Associate Dean, Associate Professor of Pediatrics and Section Head

**Tai Lockspeiser, MD, MHPE**, Medical Director, Associate Professor of Pediatrics

**Jacqueline Sivahop, Ed.D., PA-C**, Associate Program Director - Program Quality, Associate Professor of Pediatrics

**Amy Akerman, MPAS, PA-C**, Faculty, Assistant Professor of Pediatrics

**Janice Baker, MHR**, Clinical Coordinator

**Cassandra Bengen**, Clinical Services Coordinator

**Kay Denler, MS**, Section Administrator, Director of Admissions and Program Systems

**Kelsey Dougherty, MMSc, PA-C**, Faculty, Assistant Professor of Pediatrics

**Tanya Fernandez, MS, PA-C**, Faculty, Assistant Professor of Pediatrics

**Nicole Giovannoni**, Didactic Services Coordinator

**Boyd Hammond, MPAS, PA-C**, Faculty, Clinical Instructor of Pediatrics

**Kate LaPorta, MHS, PA-C**, Faculty, Clinical Instructor of Pediatrics

**Rebecca Maldonado, MSHPE, PA-C**, Faculty, Associate Professor of Pediatrics

**Joyce Nieman, MHS, PA-C**, Clinical Site Educator, Associate Professor of Pediatrics

**Kristen Oase, PA-C, MS**, Faculty, Instructor of Pediatrics

**Denise Ogden, MA, PA-C**, Faculty, Clinical Instructor of Pediatrics

### Adjunct Faculty

**Claudia Luna-Asturias, LCSW**

**Amanda Miller, PA-C**

## Contact Info

**University of Colorado PA Program**

Mail Stop F543

13001 E. 17th Place, Room E7019

Aurora, Colorado 80045

Phone: (303) 724-7963

Fax: (303) 724-1350

PA-info@ucdenver.edu

### Office Hours

Monday - Thursday, 7:30 a.m. – 4:00 p.m.

Friday, 7:30 a.m. – 3:00 p.m.

**LICENSE is a mnemonic for highlighting the vision and goals of the Colorado Curriculum.**

### Longitudinal

The Colorado Curriculum is a 3#year, spiral#design curriculum that progresses from foundational concepts to more complex topics and skills in a developmentally appropriate manner.

### Integrated

The Colorado Curriculum integrates basic science, clinical medicine, and professional practice in didactic and active learning sessions for each clinical presentation.

### Clinical Presentations

The Colorado Curriculum is anchored in over 70 clinical presentations arranged in 7 body system blocks, and drives learning through a case#based approach.

### Entry Ready

The Colorado Curriculum prepares students to meet all professional competencies to practice in primary care medicine, including interprofessional team practice, meeting the needs of the profession and the communities it serves.

### Needs#Based

The Colorado Curriculum uses continuous quality improvement measures and assessments to monitor and respond to all stakeholder needs, including learners, faculty, patients, preceptors, and the community.

### Student/Learner Centered

The Colorado Curriculum places learners/students at its center, encouraging reflective practice and wellness as they grow to be lifelong learners.

### Experiential

The Colorado Curriculum grounds all learning in the context of the clinical encounter, using 4 threads to integrate and apply content to specific cases, patient populations and clinical settings.

## CHA/PA Core Competencies

### COMPETENCIES REQUIRED OF CHA/PA PROGRAM STUDENTS UPON GRADUATION

**GRADUATE CORE COMPETENCIES** Upon graduation CHA/PA students are expected to demonstrate competencies in specific areas.

Performance should be commensurate with that of a new practitioner.

The CHA/PA program provides educational experiences to support student development of requisite knowledge, skills and attitudes. I.

**PATIENT CARE** CHA/PA graduates must be able to provide patient care that is compassionate, appropriate and effective for health promotion,

disease prevention and the treatment of health problems. Graduates are expected to:

- A. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
- B. Elicit a detailed and accurate history from their patients
- C. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
- D. Perform competently all diagnostic and therapeutic procedures considered essential for the area of practice, including an appropriate physical exam
- E. Develop and implement patient management plans and health care services, including plans for health promotion, disease prevention, and medical and surgical conditions
- F. Provide education and counseling to patients and families regarding health care management
- G. Use information technology to support patient care decisions and patient education
- H. Work under the supervision of a physician and with other health care professionals from other disciplines to provide patient-focused care

**II. MEDICAL KNOWLEDGE** CHA/PA graduates must demonstrate knowledge about established and evolving biomedical and clinical information (including epidemiological and socialbehavioral sciences) and demonstrate the application of that knowledge to patient care. Graduates are expected to:

- A. Demonstrate an investigatory and analytical approach to clinical problem-solving
- B. Know and apply basic science and clinical knowledge appropriate to their clinical practice

**III. PRACTICE-BASED LEARNING AND IMPROVEMENT** CHA/PA graduates must be able to evaluate their practice in the context of current scientific evidence. Graduates must be able to access, critically evaluate and apply this evidence to improve patient care.

- A. Analyze current practice and identify areas for practice improvement
- B. Identify, locate and assimilate evidence from scientific studies related to their patients' health
- C. Obtain and use information to benefit their own patient population
- D. Apply knowledge of study designs and statistical methods to the appraisal of studies and other information on diagnostic and therapeutic effectiveness
- E. Use information technology to manage information, access on-line information; and support their own continued learning

**IV. INTERPERSONAL AND COMMUNICATION SKILLS** CHA/PA graduates must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional colleagues from a variety of disciplines. Graduates are expected to:

- A. Create and sustain a therapeutic and ethically sound relationship with patients
- B. Use effective listening skills and elicit and provide information using effective nonverbal, explanatory questioning and writing skills
- C. Work effectively with others as a team member or leader of a health care team or other professional group, under the supervision of a physician
- D. Use effective communication skills to refer patients to other health care providers or systems
- E. Demonstrate sensitivity to the needs of patients and society that supersedes self-interest; accountability to patients, society and the profession; and commitment to excellence and on-going professional development

**V. PROFESSIONALISM** CHA/PA graduates must demonstrate commitment to professional responsibilities, adherence to ethical principles, and sensitivity to diverse patient populations. Graduates are expected to:

- A. Demonstrate respect, compassion, and integrity; responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society and the profession; and commitment to excellence and on-going professional development
- B. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent and business practices
- C. Demonstrate sensitivity and responsiveness to patients' culture, age, gender and disabilities

**VI. SYSTEM-BASED PRACTICE** CHA/PA graduates must demonstrate awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Graduates are expected to:

- A. Understand how their patient care and professional practices affect other health care professionals in the health care organization, the larger

- society and how these elements of the system affect their own practice
- B. Know how medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
- C. Practice cost-effective health care and resource allocation that does not compromise quality of care
- D. Advocate for quality patient care and assist patients in dealing with system complexities
- E. Know how to partner with health care managers and providers to assess, coordinate and improve health care and know how these activities can affect system performance.

## Skaggs School of Pharmacy and Pharmaceutical Sciences

### Contacts

#### Mailing Address

University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences  
Mail Stop C238  
Pharmacy and Pharmaceutical Sciences Building  
12850 East Montview Boulevard  
Aurora, CO 80045

#### Office of Student Services

(303) 724-2882 Phone  
Office of Student Services Staff Contacts (<http://pharmacy.cuanschutz.edu/about-us/our-people/offices/#oss>)

#### Dean's Office

(303) 724-1234 Phone

#### Department of Clinical Pharmacy

(303) 724-2616 Phone  
E-mail: Cindy Austin ([cindy.austin@cuanschutz.edu](mailto:cindy.austin@cuanschutz.edu))

#### Department of Pharmaceutical Sciences

(303) 724-7263 Phone  
(303) 724-7266 Fax  
E-mail: Jackie Milowski ([jackie.milowski@cuanschutz.edu](mailto:jackie.milowski@cuanschutz.edu))

#### Distance Degrees & Programs

(303) 724-3582 Phone  
(303) 724-3732 Fax  
Email: [pharmacy.online@cuanschutz.edu](mailto:pharmacy.online@cuanschutz.edu)

#### Experiential Programs

(303) 724-2655 Phone  
(303) 724-2658 Fax  
Email: [Experiential.SOP@cuanschutz.edu](mailto:Experiential.SOP@cuanschutz.edu)

### Overview

At the CU Skaggs School of Pharmacy and Pharmaceutical Sciences, we're proud of our programs. We are a top tier school (ranked **#20 out of 143** pharmacy schools in the country). Our faculty are invited to write the textbook that all students learn from, our students consistently outperform other schools by winning national competitions and surpassing national licensing pass rates and faculty are lauded nationally with education and clinical awards.

Nationwide school rankings, licensing pass rates, **employment and residency outcomes**, and on-time graduation rates show that our school is exceptional.



To achieve its vision and mission, the school is committed to:

- **Recruiting, developing and retaining innovative and productive faculty and staff members** who contribute to the advancement of pharmacy education, research, scholarship and practice.
- **Providing expanded and innovative educational opportunities** that develop outstanding entry-level pharmacy practitioners who are motivated to advance pharmacy practice and the profession and to prepare scientists who are motivated to contribute to health and well-being through scientific research and scholarly pursuits.
- **Advancing the practice of pharmacy** through development of innovations in pharmacy practice and delivery of superior patient care, including serving as active members of collaborative healthcare care teams committed to patient care and well-being.
- **Improving health through research and scholarship** by being the innovators and leaders in research that promotes basic discovery, translation to clinical practice, medication evaluation and optimization of medication use. Through communication of research findings, foster enhanced knowledge in professional, graduate and post-graduate learners.
- **Providing leadership and service to our communities** by actively engaging with its many communities and local, national and global communities that would derive substantial benefit from the school's collective knowledge and expertise.
- **Achieving excellence through continuous quality improvement.**
- **Develop innovative strategies** to identify and exploit opportunities that allow the school to make major advances in its mission areas.

## Accreditation

The Skaggs School of Pharmacy and Pharmaceutical Sciences was fully re-accredited in 2016 for eight years by the Accreditation Council for Pharmacy Education (ACPE), the national agency for the accreditation of professional degree programs in pharmacy and providers of continuing pharmacy education.

## What is Accreditation?

Accreditation is a voluntary, non-governmental process of external quality review used by higher education to inspect colleges, universities and higher education programs for quality assurance and improvement.

Aside from the promise of overall quality educational opportunities, an institution's accreditation status provides students with the ability to qualify for federal funding and financial aid and to transfer credits to other programs that are also accredited. Accreditation can be required for professional licensure and is extremely appealing to employers.

Like all schools of pharmacy in the U.S., the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences is accredited by the Accreditation Council for Pharmacy Education (ACPE), a national agency for the accreditation of professional degree programs in pharmacy and providers of continuing pharmacy education. ACPE was established in 1932 for the accreditation of pre-service education, and in 1975 its scope of activity was broadened to include accreditation of providers of continuing pharmacy education.

Once accredited, a school or college undergoes periodic renewal reviews. Our school recently underwent a renewal review, spearheaded by Associate Dean for Academic Affairs and Associate Professor David Thompson, PhD, and received a full eight year accreditation by ACPE – the maximum level that a school can attain.

## Obtaining Accreditation

The process of accreditation is quite involved requiring the school to complete several steps in the accreditation process including:

- Preparation and self-examination
- Written self-study report of accomplishments
- Site visit by a team comprised of peer reviewers, and a representative from the accrediting body
- Judgment by the accrediting body
- Continuous review

By accepting accreditation status, a school agrees to uphold the quality standards set by the accreditation organization and agrees to periodically submit to accreditation renewal review.

## More about ACPE

ACPE is an autonomous and independent agency whose board of directors is derived through the American Association of Colleges of Pharmacy, the American Pharmacists Association, the National Association of Boards of Pharmacy (three appointments each), and the American Council on Education (one appointment).

Read an abbreviated short version of our accreditation self-study report ([https://pharmacy.cuanschutz.edu/docs/librariesprovider195/default-document-library/cu\\_sspps\\_standards\\_all\\_short.pdf?sfvrsn=553dc5b9\\_4](https://pharmacy.cuanschutz.edu/docs/librariesprovider195/default-document-library/cu_sspps_standards_all_short.pdf?sfvrsn=553dc5b9_4)). To learn more about our school's accreditation status or about the accreditation process, contact ACPE (<https://www.acpe-accredit.org/>).

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  - Cannabis Science & Medicine (Certificate) (p. 413)
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  - International-Trained PharmD Program (PharmD) (p. 415)
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## Leadership

### Dean

**Ralph Altieri**, Dean, School of Pharmacy and Pharmaceutical Sciences

### Associate Deans

**Rachel Copeland**, Associate Dean for Finance & Budget

**Brian Hemstreet**, Associate Dean for Student Affairs

**Gina Moore**, Associate Dean for Administration and Operations

**David Ross**, Associate Dean for Research & Graduate Studies

**David Thompson**, Associate Dean for Academic Affairs

### Assistant Dean

**Jason Brunner**, Assistant Dean for Assessment

### Skaggs School of Pharmacy Faculty

Ralph Altieri, PhD - Dean, School of Pharmacy and Pharmaceutical Sciences

Rachel Copeland, MBA - Associate Dean for Finance & Budget

David Ross, PhD - Associate Dean for Research and Graduate Studies

David Thompson, PhD - Associate Dean for Academic Affairs

Jason Brunner, PharmD - Assistant Dean for Assessment

Brian Hemstreet, PharmD, FCCP, BCPS - Associate Dean for Student Affairs, Professor

Gina Moore, PharmD, MBA - Associate Dean for Administration and Operations

Douglas Fish, Pharm D - Professor and Chair, Clinical Pharmacy

Davis Ross, PhD - Professor and Chair, Pharmaceutical Sciences

Heather Anderson, PhD - Associate Professor, Clinical Pharmacy

Laura Borgelt, PharmD - Associate Vice Chancellor of Strategic Initiatives, Professor, Departments of Clinical Pharmacy and Family Medicine

Louis Diamond, PhD - Dean Emeritus

Eric Gilliam - Assistant Director of Experiential Programs, Associate Professor

Shaun Gleason, PharmD - Director, Associate Professor

Jodie Malhotra, PharmD - Director of Practitioner and International Development, Associate Professor

Gina Moore, PharmD, MBA - Associate Dean for Administration and Operations, Associate Professor

Monika Nuffer, PharmD - Academic and Experiential Program Coordinator, Senior Instructor

Wesley Nuffer, PharmD, BCPS, CDE - Assistant Director of Experiential Programs, Associate Professor

Joseph Saseen, PharmD - Professor and Vice Chair

Megan Thompson - Director of Experiential Programs, Associate Professor

## Online Pharmacy Programs

### Distance Degrees and Programs Office

CU Pharmacy's Distance Degrees and Programs Office has offered flexible degree programs designed for working professionals for over 20 years. Online education has changed from its early format; however, we remain committed to offering flexible, innovative and engaging graduate degree and certificate programs to expand career options for healthcare professionals. The Distance Degrees and Programs (DDP) strives to prepare students for success in all levels of pharmacy education and health related education, from the basic sciences to advanced levels of pharmacist-delivered patient care in order to support the role of the pharmacist in promoting positive health outcomes for patients and the communities they serve. The DDP strives to provide innovative educational strategies to prepare students for success.

### CONTACT US

**Email:** Pharmacy.Online@cuanschutz.edu

**Mailing Address, Phone and Fax Number#** – Our office is located in the Skaggs School of Pharmacy and Pharmaceutical Sciences building on the Anschutz Medical Campus.

### Distance Degrees and Programs Office

Skaggs School of Pharmacy and Pharmaceutical Sciences

12850 E. Montview Blvd., Room V20-1116

Aurora, CO 80045

Mail Stop (C238-V20)

Office Phone Number:#303-724-3582

Office Fax Number:#303-724-3732

The following programs are available **online** through the Skaggs School of Pharmacy:

- Cannabis Science & Medicine (Certificate) (p. 413)
- Clinical Pharmacy (MS) (p. 414)
- International-Trained PharmD Program (PharmD) (p. 415)
- North American-Trained PharmD Program (PharmD) (p. 416)
- Palliative Care (p. 417)
  - Palliative Care (MS) (p. 417)

### Graduation Ceremony

Students can graduate in May, August and December. The formal graduation ceremony is held in late May at the Anschutz Medical Campus each year. Students who graduated the previous December, August or will be eligible for the current May graduation can participate in the May graduation ceremony. In the spring semester, the Distance Degrees and Programs Office will email all eligible students instructions on how to plan for the graduation ceremonies.

The information provided in the following dropdowns refers to graduation requirements for the North American Trained PharmD (NTPD) Program and the International Trained (ITPD) Program. Please contact the Distance Degrees and Programs Office for graduation information regarding other programs offered Pharmacy.Online@cuanschutz.edu.

### Diploma Application

All students must submit a diploma application through UCDenver Access (<https://passport.ucdenver.edu/login.php>). The deadline to submit the diploma application is located below in the semester specific graduation deadline tabs.

Students who have an unpaid balance on their account or who have not submitted their diploma application by the deadline will not receive a diploma.

## Graduation Requirements and Deadlines

A 2.0 cumulative, professional grade point average (GPA) is the minimum GPA required of all graduating Doctor of Pharmacy students. Students must also receive a passing grade for all required and elective advanced pharmacy practice experiences (APPEs), which includes both rotations and credit-by-challenge submissions.

All coursework, didactic and experiential, must be completed within six contiguous calendar years. Any exception to this requires approval from the program director and the DDP Committee.

In addition, students who miss the deadlines identified below may not graduate by their anticipated graduation date.

### May graduation deadlines

- **Before December 1** – Students should contact the Distance Degrees and Programs (DDP) Office to have their transcript reviewed and confirm their graduation eligibility.
- **First Day of Spring Semester** – All credit-by-challenges must be received by the DDP Office in their final format.
- **First week of February (check with your advisor for February deadline date)** – Diploma application
- **March 1** – Students admitted in summer 2014 semester to present: All Drug Information Portfolio and Professional Skills Portfolio materials need to be submitted in **E-Value** for final review.
- **May 1** - All renewal courses, rotations and credit-by-challenge reviews must be completed. Proof of completion for an American Pharmacists Association (APhA) Pharmacy-Based Immunization Delivery certification training program must be submitted to the DDP Office. Students should review the **Immunization Training policy** for specific training requirements.
- **Late May** – Graduation ceremonies are held at the Anschutz Medical Campus, typically during Memorial Day weekend. All students who are graduating are invited to attend the graduation ceremonies.
- **Early June** – Degrees will be posted on the transcript for eligible students by early June.

### August graduation deadlines

- **Before April 1** – Students should contact the Distance Degrees and Programs (DDP) Office to have their transcript reviewed and confirm their graduation eligibility.
- **First Day of Summer Semester** – All credit-by-challenges must be received by the DDP Office in their final format.
- **July 1 - Students admitted in summer 2014 semester to present:** All Drug Information Portfolio and Professional Skills Portfolio materials need to be submitted in **E-Value** for final review.
- **First week of June (check with your advisor for June deadline date)** – Diploma application
- **August 3** – All renewal courses, rotations and credit-by-challenge reviews must be completed. Proof of completion for an American Pharmacists Association (APhA) Pharmacy-Based Immunization Delivery certification training program must be submitted to the DDP Office. Students should review the **Immunization Training policy** for specific training requirements.
- **Early September** – Degrees will be posted on the transcript for eligible students by early September.

- **Late May** – All students who graduate in August may attend the graduation ceremonies held on the Anschutz Medical Campus the following May. The graduation ceremonies are typically held during Memorial Day weekend.

### December graduation deadlines

- **Before July 1** – Students should contact the DDP Office to have their transcript reviewed and confirm their graduation eligibility.
- **First Day of Fall Semester** – All credit-by-challenges must be received by the DDP Office in their final format.
- **First week of September (check with your advisor for September deadline date)** – Diploma application
- **October 1 - Students admitted in summer 2014 semester to present:** All Drug Information Portfolio and Professional Skills Portfolio materials need to be submitted in **E-Value** for final review.
- **November 30** - All renewal courses, rotations and credit-by-challenge reviews must be completed. Proof of completion for an American Pharmacists Association (APhA) Pharmacy-Based Immunization Delivery certification training program must be submitted to the DDP Office. Students should review the **Immunization Training policy** for specific training requirements.
- **Early January** – Degrees will be posted on the transcript for eligible students by early January.
- **Late May** – All students who graduate in December may attend the graduation ceremonies held on the Anschutz Medical Campus the following May. The graduation ceremonies are typically held during Memorial Day weekend.

## Cannabis Science & Medicine (Certificate)

### Program Overview

The University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences is a leader in the scientific investigation, quality assurance and clinical evaluation of plant-based medicines. Our Cannabis Science and Medicine Graduate Certificate extends that expertise with a 9-credit hour graduate certificate program. The certificate provides an in-depth understanding of the pharmacology and therapeutics of cannabis. Ideal candidates for this offering include healthcare professionals who want to optimize overall clinical outcomes and scientists who want to enhance their knowledge of cannabis chemistry, analysis and actions.

The online nature of the course and self-directed learning modules will allow flexibility for learners and offer wide geographic engagement.

- Self-directed learning will be complemented by online, synchronous live, case-based discussions and/or activities guided by clinical practice experts, clinical researchers, medicinal plant chemists and pharmacologists, and legal and regulatory leaders.
- 9 credit hours of core coursework in pharmacology, therapeutics and legal & regulatory issues.
- Optional opportunity to complete an additional 2-credit hours of coursework focusing on the chemical analysis of plant-based medicines (comprised of an online 2 credit hour laboratory methods course).
- Completion of this Graduate Certificate in CSM will also enable those desiring advanced study to apply their earned credits (9 to 11

credit hours) toward a 30-credit hour Master of Science degree in Pharmaceutical Sciences with an emphasis in CSM.

Have questions about the program? Fill out our Request Information form (<https://pharmacy.cuanschutz.edu/cupharmacy/request-information/>) and one of our knowledgeable admissions counselors will contact you.

ELIGIBILITY

The Cannabis Science and Medicine (CSM) certificate is an online, interprofessional graduate certificate program educating healthcare professionals on the scientific use of cannabis and cannabis derived products for therapeutic options. The certificate is open to applicants who:

- Have completed a B.S. or B.A. (or higher) in a biological, chemical, medical science or allied health program; OR
- Are enrolled and in good standing in an accredited health sciences professional school (MD, DO, PA, PharmD, DMD/DDS, RN, BSN, APRN, or other as appropriate).
  - Completed at least one year within their program’s curriculum and are in good standing with a cumulative professional grade point average of at least 2.0.
  - Be in good standing with any internship licensing agency.

Visit the Cannabis Science and Medicine Admission Page (<https://pharmacy.cuanschutz.edu/academics/online-programs/cannabis-science-and-medicine/#certificate>) to learn how to apply.

ACADEMIC REQUIREMENTS

The Graduate Certificate in Cannabis Science and Medicine (CSM) is a 9-11 credit hour, online academic-based graduate program. This program is ideal for health professionals and researchers interested in cannabis science, evaluation of clinical literature and legal and regulatory issues.

The online nature of the course and self-directed learning modules will allow flexibility for learners and offer wide geographic engagement.

- Self-directed learning will be complemented by online, synchronous live, case-based discussions and/or activities guided by clinical practice experts, clinical researchers, medicinal plant chemists and pharmacologists, and legal and regulatory leaders.
- 9 credit hours of core coursework in pharmacology, therapeutics and legal & regulatory issues.
- Optional opportunity to complete an additional 2-credit hours of coursework focusing on the chemical analysis of plant-based medicines (comprised of an online 2 credit hour laboratory methods course).
- Completion of this Graduate Certificate in CSM will also enable those desiring advanced study to apply their earned credits (9 to 11 credit hours) toward a 30-credit hour Master of Science degree in Pharmaceutical Sciences with an emphasis in CSM.

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
PCSM 6720	Cannabis Therapeutics Pain/Oncology	2

PCSM 6710	Cannabis Therapeutics Neurology/Mental Health	2
<b>Hours</b>		<b>4</b>
<b>Total Hours</b>		<b>4</b>
<b>Second Year</b>		
<b>Spring</b>		
PCSM 6730	Legal & Regulatory Issues in Cannabis Medicine	2
PCSM 7700	Cannabis Pharmacology & Physiology	3
<b>Hours</b>		<b>5</b>
<b>Total Hours</b>		<b>5</b>

Clinical Pharmacy (MS)

Program Overview

The Master of Science in Clinical Pharmacy program is designed for pharmacists (in the US and abroad) who have earned a BS, an MS, or a PharmD and are seeking to update their professional knowledge and skills. The program enables graduates to effectively provide patient-centered pharmacy care and expand their careers. The Master of Science in Clinical Pharmacy program is a flexible 33 credit hour program that can be completed remotely from your home anywhere in the world.

Have questions about the program? Fill out our Request Information form (<https://pharmacy.cuanschutz.edu/cupharmacy/request-information/>) and one of our knowledgeable admissions counselors will contact you.

ELIGIBILITY

The Master of Science in Clinical Pharmacy program is open to pharmacists who meet one of the following requirements:

- The applicant completed a bachelor degree (or equivalent, including MPharm) in pharmacy and from any Accreditation Council for Pharmacy Education (ACPE) or Canadian Council for Accreditation of Pharmacy Programs (CCAPP).
- The applicant completed a bachelor degree (or equivalent, including MPharm) in pharmacy from locally-approved / accredited college or university program outside of the United States.
- The applicant completed a PharmD degree from an ACPE or CCAPP-accredited program or other international PharmD program.

Is the M.S. Clinical Pharmacy Program right for you?

Our program is an excellent post-graduate option if you are a pharmacist with a BS in Pharmacy, MS or Doctor of Pharmacy degree, and are:

- Looking to advance your career in a clinical pharmacy practice setting; i.e. health system pharmacy, ambulatory or acute care pharmacy.
- Seeking formal training in the latest clinical pharmacy practice guidelines in pharmacotherapy and health systems pharmacy.
- Interested in a flexible, interactive, online, graduate degree program.

Please note:

- Completion of the Master of Science in Clinical Pharmacy does not meet requirements for U.S. pharmacist licensure.

- Recent PharmD graduates from ACPE or CCAPP-accredited programs should closely review the Master of Science in Clinical Pharmacy curriculum as it encompasses the didactic curriculum of our current ACPE-accredited PharmD degree.
- The Master of Science in Clinical Pharmacy includes a variety of professional and academic coursework in theoretical and applied clinical pharmacy. It does not include Introductory or Advanced Pharmacy Practice Experiences (rotations). Students seeking these experiences should consider our PharmD pathways.

Visit the the M.S. Clinical Pharmacy Admission Information page (<https://pharmacy.cuanschutz.edu/academics/online-programs/ms-in-clinical-pharmacy/#admissions>) to learn how to apply.

## ACADEMIC REQUIREMENTS

The Master of Science in Clinical Pharmacy program requires the completion of 33 semester credit hours of online coursework. The program is designed to provide students with the fundamentals to succeed in any clinical pharmacy setting and includes coursework in#pharmacy practice, applied clinical pharmacy practice, pharmacotherapy and healthcare systems.#In addition to the didactic coursework, there are two practice-based, longitudinal portfolios on drug information and professional skills and a capstone thesis project.

Code	Title	Hours
<b>Required Courses - Must complete 15.5 credit hours</b>		
PRDM 7150	Medical Terminology and Lab Interpretation	0.5
PRDM 7413	Masters Drug Information Portfolio	0.5
PRDM 7440	Evidence-Based Medicine & Literature Eval	3
PRDM 7490	Healthcare Informatics	1
PRDM 7561	Instructional Methods/Research	1.5
PRDM 7621	Interprofessional Collaborative Practice	0.5
PRDM 7622	Interprof Healthcare Ethics & Health Equity	0.5
PRDM 7700	Clinical Skills Foundation	2
PRDM 7800	Clinical Reasoning & Decision Making	2
PRDM 7851	Clinical Capstone	3.5
PRDM 7913	Professional Skills Portfolio	0.5
<b>Total Hours</b>		<b>15.5</b>

Code	Title	Hours
<b>Students can select to complete either a thesis project or internship.</b>		
PRDM 8001	MS Clin Pharm Capstone Thesis Foundations	0.5
PRDM 8002	MS Clin Pharm Capstone Thesis Project	2.5
PRDM 8003	MS in Clinical Pharmacy Internship	6

Code	Title	Hours
<b>REQUIRED#CHOICE COURSES (Pharmacotherapy) – At Least 8 Credit Hours of the Courses Below.</b>		
PRDM 7710	Pharmacotherapy I – CV/Renal	2.5
PRDM 7720	Pharmacotherapy II – GI/Nutrition	2.5
PRDM 7730	Pharmacotherapy III Infectious Diseases	2
PRDM 7741	Pharmacotherapy IV-Oncology	2
PRDM 7750	Pharmaco V- Geriatrics/Neurology/Psychiatry	3
PRDM 7760	PharmacoVI- Pulm/Hematology/Gynecology/Endo	3

Code	Title	Hours
<b>REQUIRED#CHOICE COURSES (Healthcare Systems) – At Least 2 Credit Hours of the Courses Below.</b>		

PRDM 7601	Public Health	1
PRDM 7602	U.S. Based Health Economics	1
PRDM 7470	U.S. Pharmacy Leadership & Management	2
PRDM 7492	Healthcare Informatics II	1

Code	Title	Hours
<b>ELECTIVE COURSES – At Least 5 Credit Hours of the Courses Below.</b>		

PRDM 7742	Pharmacotherapy IV-II Bone & Connective Tissue	0.5
PRDM 7323	Pharmacotherapy – Critical Care	1
PRDM 7331	Pharmacotherapy – Pediatrics	1
PRDM 7780	Pharmacogenomics	1
PRDM 7745	Palliative Care Pharmacotherapy	1
PRDM 7495	Innovation Entrepreneurship	1
PRDM 7775	Integrated Health and Medicine	1

## International-Trained PharmD Program (PharmD)

### Program Overview

The International-Trained PharmD Program is an advanced standing entry-level Doctor of Pharmacy program for pharmacists who graduated with a bachelor's degree (or equivalent) in pharmacy from any locally-approved or accredited college or university program outside the United States. By earning a Doctor of Pharmacy (PharmD) degree from the University of Colorado's Skaggs School of Pharmacy and Pharmaceutical Sciences' International-Trained PharmD (ITPD) Program, you'll be able to make a lasting impact your patients, community and career.

The ITPD program meets the same abilities-based outcomes as the school's on-campus entry-level program, with advanced standing achieved through coursework earned in the applicant's baccalaureate Pharmacy degree, prior professional experience, and demonstration of competency in biomedical sciences and pharmaceutical sciences via pre-admission examination. These exams assure that knowledge obtained from coursework provided in the applicant's baccalaureate pharmacy program may be accepted as credit for previous degree work. Alternatively, applicants may demonstrate this competency through successful passing of the US Foreign Pharmacy Graduate Equivalency Exam (FPGEE).

Have questions about the program? Fill out our Request Information form (<https://pharmacy.cuanschutz.edu/cupharmacy/request-information/>) and one of our knowledgeable admissions counselors will contact you.

### ELIGIBILITY

The International-Trained PharmD (ITPD) Program is open to pharmacists who possess a bachelor degree (or equivalent) in pharmacy from any locally-approved or accredited college or university program outside of the United States. Applicants must be licensed pharmacists and be in good standing with the licensing agency in their country. Successful applicants must also demonstrate a desire and commitment to expand patient-centered pharmacy care in their home country. (PLEASE NOTE: Successful completion of the ITPD program's pathway to the PharmD



degree does not ensure eligibility for licensure in the U.S., as each state sets its own requirements for licensure.)

To learn more about the ITPD admission requirements, visit the the International- Trained PharmD Program Admission page (<https://pharmacy.cuanschutz.edu/academics/online-programs/itpd/#admissions>).

## ACADEMIC REQUIREMENTS

The ITPD Program requires the completion of 54 credit hours of didactic coursework, which includes introductory/advanced introductory pharmacy practice experiences and 36 credit hours experiential training in advanced pharmacy practice experiences (APPEs), or rotations, totaling 90 credit hours.

The ITPD Program is primarily a distance-based program, yet the ITPD Program does require students to come to Colorado during the curriculum. During these visits, students complete program requirements through live sessions, which occur at the beginning and toward the end of the curriculum.

The first live session includes four weeks of on-campus training, which provides in-person interaction, individualized education and support, and introductory pharmacy practice experiences (IPPEs).

The second live session includes an additional four weeks of on-campus training, with the completion of the advanced IPPE and assessments to prepare students for the advanced pharmacy practice experience (APPE) rotations. APPE rotations are completed in the US over 30-36 weeks.

Code	Title	Hours
<b>Live Session #1 Required On Campus Courses</b>		
PRDI 7000	US Pharmacy Prac Fund	2
PRDI 7100	Pt Centered Clin Comm	2.5
PRDI 7150	Med Term & Lab Interp	0.5
PRDI 7300	Intro Phcy Pract Exp I	2.5
<b>Total Hours</b>		<b>7.5</b>

Code	Title	Hours
<b>Online didactic course requirements.</b>		
PRDI 7470	US Phcy Leadership Mgmt	2
PRDI 7480	US Phcy Law & Reg Stds	1.5
PRDI 7770	US Pt Centered Self-Care	2.5
PRDI 7911	Professional Skills Portfolio I	1
PRDI 7912	Professional Skills Portfolio II	0.5
PRDO 7419	Applied Drug Info (DI) Portfolio	0.5
PRDO 7440	Evid-based Med & Lit Ev	3
PRDO 7490	Healthcare Informatics	1
PRDO 7492	Healthcare Informatics II	1
PRDO 7561	Instructional Methods	1.5
PRDO 7601	Public Health	1
PRDO 7602	Health Economics	1
PRDO 7621	Interprofessional Collaborative Practice	0.5
PRDO 7622	Interprof Healthcare Ethics & Health Equity	0.5
PRDO 7700	Clin Skills Foundations	2
PRDO 7710	Pharmacotherapy-CV/Renal	2.5
PRDO 7720	Pharmacotherapy-GI/Nutr	2.5
PRDO 7730	Pharmacotherapy-Inf Dis	2

PRDO 7741	Pharmacotherapy-Oncology	2
PRDO 7742	Pharmacotx -Bone Conn Tis	0.5
PRDO 7750	Pharmacotx-Ger/Neur/Psy	3
PRDO 7760	PhtxEndoHemePulmUroGyn	3
PRDO 7780	Pharmacogenomics	1
PRDO 7800	Clinical Problem Solving Skills	2
PRDO 7851	Clinical Capstone	3.5

**Total Hours** **41.5**

Code	Title	Hours
<b>Electives</b>		
<i>Students are required to enroll in one elective from the list below</i>		
PRDO 7495	Innovation Entrepreneurship	1
PRDO 7323	ADSM II-III Critical Care	1
PRDO 7745	Palliative Care Pharmacotherapy	1
PRDO 7775	Integrative Health & Medicine	1
PRDO 7818	Pharmaceutical Industry Fundamentals	1

Code	Title	Hours
<b>Live Session #2 Required On Campus Courses</b>		
PRDI 7900	Prof Skills Dev	1
PRDI 7920	Adv Intro Phcy Prac Exp	3
<b>Total Hours</b>		<b>4</b>

Code	Title	Hours
<b>Experiential Coursework</b>		
<i>ITPD students are required to complete a total of 6 experiential rotations.</i>		
PRDO 8401	APPE - Ambulatory Care	6
PRDO 8501	APPE Hospital/Health System	6
PRDO 8502	APPE Hospital/Health System Challenge	6
PRDO 8601	Advanced Pharmacy Practice Experience-Community	6
PRDO 8701	APPE Elective Rotation (2 Electives Required)	6

# North American-Trained PharmD Program (PharmD)

## Program Overview

The North American-Trained PharmD program is a post-baccalaureate Doctor of Pharmacy pathway for licensed pharmacists seeking to expand their knowledge of clinical pharmacy and their careers.

Our NTPD program has been educating post-baccalaureate pharmacists since 1999. Times have changed, but our commitment to advancing pharmacy education remains strong. The NTPD program is a flexible, fully accredited by the Accreditation Council for Pharmacy Education (ACPE), and – depending on your needs - can be completed in 2 1/2 - 6 years. All graduates earn a Doctor of Pharmacy degree.

Have questions about the program? Fill out our Request Information form (<https://pharmacy.cuanschutz.edu/cupharmacy/request-information/>) and one of our knowledgeable admissions counselors will contact you.

## ELIGIBILITY

The North American-Trained PharmD (NTPD) Program is open to pharmacists who are licensed in the United States or Canada and are



in good standing with the licensing agency, provided the following requirements are met:

- The applicant received a baccalaureate degree from a five-year pharmacy program accredited by ACPE or Canadian Council for Accreditation of Pharmacy Programs (CCAPP) and holds a valid license to practice pharmacy in the United States or Canada; or
- The applicant received a pharmacy degree from a non-United States or non-Canadian program and holds a valid license to practice pharmacy in a United States jurisdiction.
- **Please Note:** The Distance Degrees and Programs (DDP) Office offers two ACPE accredited PharmD programs: the NTPD Program and the International-Trained PharmD (ITPD) Program. All licensed pharmacists who not licensed to practice pharmacy in the United States, or are licensed to practice in Canada but were educated outside of Canada (ie, a non-CCAPP-accredited school) are encouraged to review the admissions requirements for the ITPD Program (<https://pharmacy.cuanschutz.edu/academics/online-programs/itpd/>).

Visit the the North American-Trained PharmD Admission Information page (<https://pharmacy.cuanschutz.edu/academics/online-programs/ntpd/#application>) to learn how to apply.

## ACADEMIC REQUIREMENTS

The NTPD Program requires the completion of 35 semester credit hours of didactic coursework and 30 credit hours of experiential training in advanced pharmacy practice experiences (APPEs), or rotations, for a total of 65 semester credit hours.

All students have six years to complete the program requirements. To offer maximum flexibility, the 65 semester credit hours can be completed in a part-time or full-time format. The NTPD Program encourages students to complete, at a minimum, four to six credit hours per semester.

Code	Title	Hours
<b>Online didactic course requirements.</b>		
PRDO 7419	Applied Drug Info (DI) Portfolio	0.5
PRDO 7440	Evid-based Med & Lit Ev	3
PRDO 7490	Healthcare Informatics	1
PRDO 7492	Healthcare Informatics II	1
PRDO 7561	Instructional Methods	1.5
PRDO 7601	Public Health	1
PRDO 7602	Health Economics	1
PRDO 7621	Interprofessional Collaborative Practice	0.5
PRDO 7622	Interprof Healthcare Ethics & Health Equity	0.5
PRDO 7700	Clin Skills Foundations	2
PRDO 7710	Pharmacotherapy-CV/Renal	2.5
PRDO 7720	Pharmacotherapy-GI/Nutr	2.5
PRDO 7730	Pharmacotherapy-Inf Dis	2
PRDO 7741	Pharmacotherapy-Oncology	2
PRDO 7742	Pharmacotx - Bone Conn Tis	0.5
PRDO 7750	Pharmacotx-Ger/Neur/Psy	3
PRDO 7760	PhtxEndoHemePulmUroGyn	3
PRDO 7780	Pharmacogenomics	1
PRDO 7800	Clinical Problem Solving Skills	2

PRDO 7851	Clinical Capstone	3.5
<b>Total Hours</b>		<b>34</b>

Code	Title	Hours
<b>Electives</b>		

*Students are required to enroll in 1 elective from the list below.*

PRDO 7495	Innovation Entrepreneurship	1
PRDO 7323	ADSM II-III Critical Care	1
PRDO 7745	Palliative Care Pharmacotherapy	1
PRDO 7775	Integrative Health & Medicine	1
PRDO 7818	Pharmaceutical Industry Fundamentals	1

Code	Title	Hours
<b>Experiential Coursework</b>		

*NTPD students are required to complete a total of 5 experiential rotations totaling 30 credits*

PRDO 8401	APPE - Ambulatory Care	6
PRDO 8501	APPE Hospital/Health System	6
PRDO 8701	APPE Elective Rotation (3 Elective Rotations Required)	6

## Palliative Care

The Palliative Care program is a collaborative, interprofessional master's degree and certificate program, pooling expert faculty and resources from CU's School of Medicine, College of Nursing, Skaggs School of Pharmacy, and the Graduate School.

- Palliative Care (MS) (p. 417)

## Palliative Care (MS)

Come grow your skills as a compassionate health leader who makes a difference in the lives of patients. The Palliative Care Program is a collaborative, interprofessional degree that pools expert faculty from CU's School of Medicine, College of Nursing, Skaggs School of Pharmacy, and Graduate School.

To learn more about the interprofessional **Master of Science in Palliative Care**, please click here (p. 207) to view the information within the Graduate School portion of the academic catalog.

## Pharmacy (PharmD)

The Doctor of Pharmacy (PharmD) is a four-year professional degree program that will prepare you for a variety of careers in the dynamic profession of pharmacy. From hospitals to pharmaceutical companies, we'll prepare you to work in a variety of healthcare settings as a medication expert who makes a difference in the lives of patients.

New students enter the program in the fall. Candidates must submit their applications to PharmCAS **by June 1, 2022**, to create a PharmCAS account/application if they do not have one already. Candidates will need a PharmCAS application to be considered for admission. All application materials, including the application fee, must be received by the deadline. Late and/or incomplete applications will not be considered.

Applicants to the University of Colorado Skaggs School of Pharmacy are expected to conduct themselves within legal and ethical standards of

behavior during the admission process. It is our goal to admit students with a high level of professionalism or professional potential.

You are responsible for properly completing your application, sending your supporting documentation and fees to PharmCAS and the School of Pharmacy on time, AND regularly checking the status of your file online by logging onto your PharmCAS web application. The admissions committee reserves the right to review each application on a case-by-case basis.

## Coursework

Please visit the Skaggs School of Pharmacy website (<https://pharmacy.cuanschutz.edu/academics/pharmd/admissions-information/>) to review required Pre Pharmacy Coursework.

Applicants to the University of Colorado School of Pharmacy must complete all prerequisites with a grade of C or higher (C- or below is not acceptable) at a college or university that is accredited by the North Central Association of Colleges or one of its regional affiliates. Applicants must complete all prerequisites by the end of the spring term prior to their first fall term in the School of Pharmacy. Science and Calculus prerequisite course work must have been completed within the last 10 years of the semester in which the applicant intends to enroll. We can offer prerequisites extensions into the summer semester in certain circumstances. Please contact us at [SPOSSApps@cuanschutz.edu](mailto:SPOSSApps@cuanschutz.edu) for more information. In many cases, applicants can be admitted while they are completing the course work in the spring semester but the number of courses in progress may affect the decision of the admissions committee should there not be sufficient course work to evaluate.

## Transcripts

All transcripts must be submitted to PharmCAS regardless of the age or transferability of courses. The admissions committee considers all coursework completed and derives a cumulative GPA from all colleges and universities attended. Failure to reveal all transcripts will result in disqualification. Once admitted, official transcripts from all previous colleges and universities (including other University of Colorado campuses) attended must be submitted directly to the School of Pharmacy. All transcripts must be received in a sealed envelope from the institution. Updated official transcripts must be provided as soon as each subsequent term is completed.

## Application

Application to the Doctor of Pharmacy program is available through the Pharmacy College Application Service or PharmCAS (<http://www.pharmcas.org/>), a centralized application service to apply to multiple degree programs offered by schools and college of pharmacy. PharmCAS is designed for first-year professional PharmD degree programs.

## GPA

The average GPA of our admitted students is typically around 3.4. Competition is typically the strongest among out-of-state applicants.

## Recommendations

Two recommendation forms (<https://www.pharmcas.org/application-instructions/evaluations/>) are required as part of the PharmCAS application (<http://www.pharmcas.org/>). Letters submitted in lieu of completing the form will not be accepted. The applicant should seek recommendations attesting to his/her academic performance (academic recommendation) or on the applicant's professional skills and potential

for success in a rigorous professional degree program (professional recommendation).

## Interview

### Interview Options

Qualified applicants will have the option to complete an On-Site or Virtual Interview, and if eligible, receive an offer of admission. Interviews begin in August.

When a candidate meets the threshold to be invited for an interview, the school's admissions team will contact the candidate directly with a summary of available interview dates.

### Interview Dates

## Other Requirements

### English Proficiency

Excellent oral and written English communication skills are necessary prerequisites for admission to the school, success in the program and competent practice in the field of pharmacy. Applicants who meet one or more of the criteria in the review process will be required to undergo an evaluation of your English language proficiency. This will be completed via an Oral Proficiency Interview (OPI) as part of the application process. The purpose of this computerized OPI is to assess and rate a speaker's level of oral proficiency in English. Please be aware that for your application to continue through the admissions process, an OPI is required. Aspects of this evaluation include pronunciation, grammar usage, and coherent discourse.

Due to the rigorous communicative demands of the Pharm.D. program, the minimum English oral proficiency admission standard is "advanced low" according to the ACTFL Oral Proficiency Guidelines for Speaking. Applicants rated at an oral proficiency level below "advanced low" via the OPI are disqualified from the pool of applicants considered for admission.

### Confirmation Deposit

Approximately two weeks after receiving a letter of acceptance, applicants must submit a \$200 initial confirmation deposit to hold their position in the entering class. By March 1, an additional \$200 confirmation deposit will be required. (After March 1, the total admission deposit will be \$400). This deposit will be credited after the first semester of matriculation.

### Criminal Background Check

Each admitted student must submit to a national background check on upon initial, conditional acceptance to pharmacy school. The rationale for performing criminal background checks on accepted pharmacy school applicants is based on a number of issues, including 1) the need to enhance the safety and well-being of patients and, in so doing, to bolster the public's continuing trust in the pharmacy profession, 2) to ascertain the ability of accepted applicants to complete their pharmacy education (students are required to maintain a State of Colorado pharmacy intern license while participating in the pharmacy curriculum which includes direct patient care activities) and to eventually become licensed pharmacists.

In support of this recommendation, AACP has initiated a PharmCAS-facilitated national background check service, through which Certiphi Screening, Inc. (a Vertical Screen® Company) will procure a national background report on applicants at the point of acceptance. AACP has

initiated this service in order to recognize the desire of pharmacy schools to procure appropriate national criminal history reports and to prevent applicants from paying additional fees at each pharmacy school to which they are accepted.

### Drug Testing

All matriculated students are also required to undergo drug testing and you will receive further information regarding this requirement after you are enrolled in the program.

### Correspondence Methods During the Admissions Cycle

The School of Pharmacy reserves the right to choose to correspond with our applicants via e-mail, phone or by U.S. Postal Services. It is incumbent upon the applicant to ensure a current email, phone and postal address are currently on file. The School of Pharmacy cannot be held accountable if the candidate does not receive or respond to application or admission related correspondence.

E-mail messages generated by the School of Pharmacy and related services may be sent simultaneously to multiple applicants. To avoid missing important e-mails, turn the "Spam" or "junk" email filters off during the application cycle or periodically check your Spam/junk e-mail file for the School of Pharmacy related messages.

### PCAT not Required

The PCAT is not required. If the PCAT (or MCAT) is submitted, it will be considered supplementary information only.

### International Applicants and Applicants with Previous Degrees

Please visit the Skaggs School of Pharmacy website (<https://pharmacy.cuanschutz.edu/academics/pharmd/admissions-information/#international>) for more information on Foreign Transcripts, International Applicants, and Applicants with previous degrees.

### Computer requirements for PharmD students

## Correspondence

The School of Pharmacy reserves the right to choose to correspond with our applicants via e-mail, phone or by U.S. Postal Services. It is incumbent upon the applicant to ensure a current email, phone and postal address are currently on file. The School of Pharmacy cannot be held accountable if the candidate does not receive or respond to application or admission related correspondence.

E-mail messages generated by the School of Pharmacy and related services may be sent simultaneously to multiple applicants. To avoid missing important e-mails, turn the "Spam" or "junk" email filters off during the application cycle or periodically check your Spam/junk e-mail file for the School of Pharmacy related messages.

The minimum professional GPA required of all pharmacy students for graduation is 2.0 (C) based upon all didactic coursework in the program. A passing grade is required for all advanced pharmacy practice experiences in the P4 year.

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
PHRD 5001	Introduction to Pharmacy	0.6
PHRD 5010	IPPE Community	2

PHRD 5015	Mechanisms of Disease	3
PHRD 5025	Applied Biological Chemistry	3
PHRD 5045	Pharmacy Law and Regulatory Standards	3
PHRD 5055	Pharmacy Practice Fundamentals & Drug Information	4
PHRD 5075	Pharmacotherapy Self-Care 1	3

**Hours 18.6**

### Spring

PHRD 5915	Modern Drug Design & Actions	2
PHRD 5925	Pharmaceutics	4
PHRD 5935	Pharmacology & Toxicology	2
PHRD 5965	Patient-Centered Communication 2	3
PHRD 5985	Pharmacotherapy 1	4
IPCP 5000	Interprofessional Collaborative Practice	1

**Hours 16**

### Year 2

#### Fall

PHRD 6015	Pharmacokinetics	3
PHRD 6065	Evidence-based Medicine & Literature Evaluation	3
PHRD 6085	Pharmacotherapy 2	5
PHRD 6095	Pharmacotherapy 3	5
IPHE 6000	IPE Healthcare Ethics & Health Equity	1

**Hours 17**

#### Spring

PHRD 6910	IPPE Health System	2
PHRD 6915	Seminar Research 1	1
PHRD 6925	Medicinal Chemistry	2
PHRD 6945	Public Health & Health Outcomes 1	3
PHRD 6965	Clinical Problem Solving Skills	2
PHRD 6985	Pharmacotherapy 4	5
PHRD 6995	Pharmacotherapy 5	4

**Hours 19**

### Year 3

#### Fall

PHRD 7015	Seminar Research 2	1
PHRD 7025	Pharmacogenomics	2
PHRD 7045	Public Health & Health Outcomes 2	3
PHRD 7055	Pharmacy Management	2
PHRD 7085	Pharmacotherapy 6	4
PHRD 7095	Pharmacotherapy 7	4

**Hours 16**

#### Spring

PHRD 7905	Advanced IPPE	6
PHRD 7965	Health Care Informatics	2
PHRD 7995	Clinical Capstone	6

You are required to take at least one of the below elective courses

PHRD 7830	Infectious Diseases Elective	2
PHRD 7835	Advanced Cardiovascular Pharmacotherapy	2
PHRD 7836	Ambulatory Care Elective	2
PHRD 7850	Geriatric Pharmacy Elective	2

PHRD 7885	Acute Care Pharmacotherapy	2
PHRD 7890	Advanced Oncology Pharmacy	2
<b>Hours</b>		<b>26</b>

**Year 4****Summer**

During your P4 year you must complete 7 rotations across the 3 semesters. Two rotations are required for PHRD 8055 & 8085. The other courses each require one rotation.

PHRD 8045	AdvPharPracExp - Medication Therapy Management	3
PHRD 8055	AdvPharPracExp - Elective	6
PHRD 8065	AdvPharPracExp - Ambulatory Care	6
PHRD 8075	AdvPharPracExp - Community	6
PHRD 8085	AdvPharPracExp - Hospital/Health-System Pharmacy	6
<b>Hours</b>		<b>27</b>
<b>Total Hours</b>		<b>139.6</b>

Choose 4 credits from the following elective courses. These are normally taken in the P2 year or P3 fall semester. Please note that actual offering may vary; contact the program to verify specific courses and registration restrictions.

<b>Code</b>	<b>Title</b>	<b>Hours</b>
<b>Electives</b>		
PHRD 7801	Principles of Clinical Pharmacology	3
PHRD 7802	Principles of Clinical Pharmacology 2	3
PHRD 7808	Introduction to the Pharmaceutical Industry	2
PHRD 7810	Applied Pharmaceutical Outcomes Research Methods	2
PHRD 7812	Seminar in Pharmaceutical Sciences	2
PHRD 7815	Physical Assessment/Examination in Pharmacy	2
PHRD 7818	Innovation and Entrepreneurship	2
PHRD 7840	Caring for the Psychiatric Patient	2
PHRD 7842	Medical Use of Cannabis	2
PHRD 7844	Special Topics in Compounding	2
PHRD 7857	Compounding Pharmacy Elective	2
PHRD 7860	Special Topics in Integrated Health & Medicine	2
PHRD 7870	Pediatric Pharm Practice	2
PHRD 7895	Beginning Medical Spanish	2
PHRD 7896	Intermediate Med Spanish	2

## PharmD Graduation Information

### Graduation Ceremony Information

The commencement ceremony that includes all schools is held in the quadrangle at the Anschutz Medical Campus. A separate, smaller convocation ceremony for CU Pharmacy graduates and their families follows in the Library Commons. Commencement ceremonies are scheduled for the Friday preceding Memorial Day weekend each year. Typically, a commencement banquet is held for graduates and guests on the Thursday evening preceding Memorial Day weekend each year. Information regarding cap and gown rentals, ordering of announcements, and schedules will be distributed during the spring as the graduation date approaches.

## Applying for the NAPLEX

### Preparing to register and sit for the NAPLEX

Before you get started, download the NAPLEX/MPJE Registration Bulletin (<https://nabp.pharmacy/programs/examinations/naplex/>). It contains everything you need to know about the exam, such as:

- The registration process
- Testing appointment instructions
- What you'll see on the exams
- How to get your score report

Be sure to download the Registration Bulletin only from this website (<https://nabp.pharmacy/programs/examinations/naplex/>) to get the most accurate, updated information about the NAPLEX. NABP is aware of some websites that are posting fake, outdated, or incorrect registration bulletins.

### Register for the NAPLEX

Ready to register for the test? Start out by logging into your NABP e-Profile to register online for the examination. The board of pharmacy in the state for which you are seeking licensure will then determine your eligibility to take the NAPLEX based upon the information you provided in your record. Check with your board of pharmacy (<http://nabp.pharmacy/boards-of-pharmacy/>) to make sure you meet their requirements. If you plan to seek licensure in multiple states, don't forget to utilize the Score Transfer (<http://nabp.pharmacy/programs/naplex/score-transfers/>) option.

When you log into your e-Profile, be sure to check that the name in your e-Profile matches the printed name on both the primary and secondary forms of ID that you will bring to the test center to ensure that you are not turned away on the day of the test. See the Important Test Day Information section below or the NAPLEX/MPJE Registration Bulletin for more information.

### Military Discount

NABP offers one-time discounts for military members and their spouses. Active military members, reserves, and veterans will be reimbursed for 100% of the registration fee, and their spouses will be reimbursed for 50% of the fee. Reimbursement of examination registration fees apply to a single attempt on the NAPLEX. Fees for repeat attempts will not be reimbursed. To learn more, contact Customer Service (<https://nabp.pharmacy/about/contact/>).

### If you are seeking licensure in Colorado, Kentucky, Maine, Michigan, Nebraska, Oregon, Rhode Island, and/or Utah

NABP confirms eligibility to sit for the NAPLEX and MPJE for candidates seeking licensure in the above listed states. If you are seeking licensure for any of these jurisdictions, including via score transfers, you will need to pay an additional non-refundable processing fee of \$85. This fee covers both the NAPLEX and MPJE and is valid for a one-year period starting with the date of the initial application.

If you have not passed your exam within that one-year period, you will forfeit the processing fee and will be required to submit a new processing fee if you wish to still take the exam(s).

If you are a new graduate seeking initial licensure in one of the above listed states, you must have an official transcript sent directly from your pharmacy school to NABP before beginning the NAPLEX/MPJE application process. Candidates applying for licensure in Oregon must also submit an official transcript to the Oregon State Board of Pharmacy.



Official transcripts must be in a sealed envelope bearing the school's stamp/seal on the envelope flap. Candidates may request that their school send transcripts electronically to transcripts@nabp.pharmacy.

### Licensure and Testing

Information regarding licensure and testing can be found at the Colorado State Board of Pharmacy site (<http://www.dora.state.co.us/pharmacy/>). If you are applying for licensure in another state, you will need to check that specific state's board of pharmacy website for their requirements.

## Diploma

Graduating students must apply for their diploma by December of their P4 year. Information will be e-mailed directly to you.

## Absence Policy

This policy forms a framework to provide consistency for student absences while considering individual circumstances. Only absences from required quizzes/exams, activities, other evaluated assignments or assessments that require attendance should be processed through the Office of Student Services (OSS). Documentation is required for these requests. Decisions regarding the status of an absence request may take up to seven business days. Please see the Student Responsibilities section for further information.

The school expects that a student will participate in every class and for the entirety of the class, independent of whether attendance is formally part of the course grade. Excessive absences, whether approved or not, may make it impossible for a student to meet the outcomes/expectations of a course. The student must understand the outcome and evaluation expectations of each course through deliberate communication with the course director(s) and a thorough review of the course syllabus. If a student needs to take an extended time away from the curriculum for reasons beyond the student's control, an administrative solution should be explored with OSS, the student, and course directors.

Absences are defined in the following categories:

### A. Absences protected by law

### B. Absences managed at the course level

### C. Unapproved absences

#### A. Absences protected by law

Students must submit an Absence Request Form along with documentation of their absence to OSS. Each request is evaluated on a case-case basis.

The school is required to provide make-up accommodations for the following situations, provided it is reasonable to do so and it does not fundamentally alter the curriculum:

- Disability-related absences that are documented through Disability Resources and Services (DRS)
  - A formal request for the accommodations must be provided by a Faculty Notification Memorandum (FNM) from DRS. The FNM must specifically include the ability to make-up missed work.
- *Absences due to jury duty*
  - A student who receives jury summons must notify the OSS immediately. It is recommended that students postpone their jury summons (if possible) due to the challenges of coordinating the rigors of coursework with jury duty.
  - If a postponement is not permitted, the student must inform OSS and provide the jury summons and the certificate of completion of jury duty from the court.
- *Absences due to the observance of protected religious holidays*
  - A student must inform OSS of their intention to observe religious holidays at the beginning of the semester.

- *Medically-related absences due to pregnancy*

- The absence duration may be as long as deemed medically necessary by the student's health care provider.
- Applies only to medically-necessary absences associated with pregnancy and childbirth. It does not, for example, apply to childcare or routine medical appointments.
- Applies to a spouse/partner during the labor and delivery, and 48 hours post-delivery.

Course directors, in collaboration with OSS, DRS, and Office of Equity, will determine if and when make-up work will be completed, e.g., before or after an evaluation is administered to the rest of the class, but typically as soon as reasonable before a student's departure or return to school. All students who take a make-up evaluation separately from the rest of the class will be required to sign an acknowledgment of the school's Student Ethics and Conduct Code. A student may choose to waive their right to this process and follow the policies for other types of absences that are published in the syllabus. The school reserves the right to deny make-up options if the student does not provide the adequate notification.

### B. Absences managed at the course level

Students must submit an Absence Request Form along with documentation of their absence to OSS. Each request is evaluated on a case-case basis.

Examples of absences that fall in this category are listed below.

Individual course syllabi/course directors dictate how these absences are managed. It is the sole responsibility of the student to review the course syllabus, and in collaboration with their course director(s), determine how an absence of this category will be managed, and if it will affect their grade and/or ability to succeed in the course.

- *Medical necessity* refers to an unpredictable or serious illness of the student or immediate family that requires urgent or immediate evaluation by a healthcare provider. Nonemergency routine office visits or elective procedures within the control of the student do not qualify and should be scheduled around the student's course schedule.
- *Death of a family member* includes the death of spouse/partner, children, or significant other within the immediate family as well as parents, grandparents and siblings of the student and/or spouse/partner
  - The amount of time a student will be allowed to be absent for the death of a family member is limited. It is usually the amount of time to travel to, attend and return from any service(s).
  - The student must contact OSS as soon as possible to discuss their options.
- *Pre-approved professional activities (e.g., conferences)*

Students attending a professional meeting must contact the student organization advisor(s), course director(s) and OSS at least four weeks in advance of the start of the meeting. The student organization advisor(s), course director(s) and OSS will review the meeting schedule to determine the number of days a student can be absent. Factors that will be considered include the role of the student at the meeting, conference programming specific to students, and the impact of travel on student's class and exam schedule.
- *Weddings*
  - If the student is a bride or groom, the maximum number of days a student will be absent will be decided in conjunction with the Assistant Dean for Student Affairs and the student's course director(s)



- If attending a wedding in which the student is not the bride or groom, then a maximum of one class day is allowed.
- *Extenuating circumstances* include those not covered by the previous categories. A determination on these absences will be made by OSS in collaboration with course directors associated with the course, when necessary.

### C. Unapproved Absences

Unapproved absences do not fall into any of the above categories. The school shall not provide make-up opportunities in these situations. Common examples of these types of absences include student-scheduled experiential activities, outside employment, tardiness due to poor planning (e.g., traffic, sleeping through an alarm, not reading directions, etc.), and extracurricular/family events. A student who decides to be absent is encouraged to use their discretion and discuss the ramifications of the missed activity or evaluation with the course director(s).

### Student Responsibilities

Students are responsible for the following:

- Students who are (or anticipate) experiencing any circumstances which may impact their ability to be successful in the pharmacy curriculum, or have questions about the Absence Policy are strongly encouraged to contact OSS in person or at [OSS@ucdenver.edu](mailto:OSS@ucdenver.edu) or 303-724-2882 as soon as possible.
- Submitting an Absence Request Form ([https://ucdenverdata.formstack.com/forms/absence\\_request/](https://ucdenverdata.formstack.com/forms/absence_request/))
  - *Organization*
    - Students must compile a summary of all assessments missed, including the course name and number, the course director(s) name(s), and the originally scheduled date and time of evaluations or required attendance activities.
  - *Documentation*
    - Students must provide necessary and complete documentation to allow the school to sufficiently evaluate the request for an absence. Additional information can be found in the "Acceptable Forms of Documentation" section of the absence form.
  - *Preapproval*
    - Students are expected to communicate with OSS in person or at [OSS@ucdenver.edu](mailto:OSS@ucdenver.edu), 30 days before the absence, or when that is not possible, as soon as possible thereafter.
    - Failure to obtain preapproval in situations where it was reasonable may result in an unapproved absence, or for legally protected absences, not providing make-up options.
    - Students must obtain confirmation of an absence before booking any travel arrangements.
  - *Follow-Up*
    - Students are expected to work with their course directors and in collaboration with OSS to determine how the absence will be managed. This will involve reference to the course structure/syllabus, as appropriate. When applicable, an email CU SSPPS Absence Policy 4 confirmation of the date and time of make-up plans should be forwarded to OSS (with course directors cc'd). This typically occurs within 48 hours before the student's departure or return to the curriculum.
- Obtaining *authorization for accommodations* through Disability Resources and Services (DRS) to allow for any make-up work due to a medical disability must occur before any make-up work will be administered. Neither the course director nor OSS can

determine whether a student has a disability that is eligible for accommodations. Accordingly, students requesting accommodations for a disability must contact:

*Sherry Holden | Coordinator  
University of Colorado Anschutz Medical Campus Disability Resources & Services  
Bldg. 500, Room Q20-EG 305A  
Phone: (303) 724-5640, Fax (303) 724-5641 Part-time:  
Monday, Tuesday and Thursday  
[sherry.holden@ucdenver.edu](mailto:sherry.holden@ucdenver.edu)*

DRS will assist in determining reasonable accommodations. Be aware that the determination of accommodations can take several weeks. No accommodations will be made for the course until DRS has notified the course directors and/or OSS of the approved accommodations. Once authorized, it is the student's responsibility to coordinate approved accommodations with the OSS well in advance. Further general information regarding disability resources and services can be found at: <http://www.ucdenver.edu/student-services/resources/disabilityresources-services/Pages/disability-resources-services.aspx>

- Pregnant students needing additional assistance or resources may contact:

*William Dewese  
Associate Director, Deputy Title IX Coordinator  
Office of Equity  
University of Colorado Denver | Anschutz Medical Campus  
1380 Lawrence Street, Room 1234, Denver CO 80204  
Phone: 303.315.0120 | [william.dewese@ucdenver.edu](mailto:william.dewese@ucdenver.edu) | [equity.ucdenver.edu](http://equity.ucdenver.edu)*

## Colorado AHEC Rotation Housing Policy

Please see the official policy document here ([https://pharmacy.cuanschutz.edu/docs/librariesprovider195/current-student-documents/pharmd/student-policies/colorado-ahec-rotation-housing-policy.pdf?sfvrsn=3ef608b9\\_4](https://pharmacy.cuanschutz.edu/docs/librariesprovider195/current-student-documents/pharmd/student-policies/colorado-ahec-rotation-housing-policy.pdf?sfvrsn=3ef608b9_4)).

## Grievance Policies & Procedures

Students who want to address, discuss or file a grievance have a variety of mechanisms available to them. The nature of the grievance determines which of the following policies and procedures apply. Student are encouraged to address their concerns as soon as possible through an informal process by contacting the department or the individuals directly involved. If the grievance is not resolved at that level, students are encouraged to meet with the Assistant Dean for Student Affairs, the Director of Student Services or the Student Academic Coordinator in the Office of Student Services (OSS) to discuss the nature of the grievance and the appropriate course of action. Students who do not feel comfortable bringing grievances to personnel in the OSS should contact the SSPPS Associate Dean for Academic Affairs or personnel in one of the Anschutz Medical Campus offices described below, based on the nature of the grievance, for assistance. Interactions should remain professional at all times and under all circumstances. Individuals are entitled to express concerns, complaints, disagreements, suggestions or grievances as described in this policy without fear of retribution.

### **Scholastic Advancement**

A student has the right to submit an appeal regarding issues of a scholastic nature, as related to an individual course or his/her

progression in the Pharm. D. program. Course content-based issues are generally not eligible for appeal. It is the responsibility of the student to prove that there exists reliable evidence of extenuating circumstances for the Scholastic Advancement and Appeals Committee (SAAC) to grant a formal hearing. A student, who has questions or concerns about his/her academic success or progress, is strongly encouraged to work closely with the Associate Dean for Student Affairs, the Director of Student Services or the Student Academic Coordinator. These individuals exist to assist the student in navigating academic situations and can help the student by: discussing situations to explore the best course of action, meeting with the student and instructors/course directors to serve as a student resource and advocate, providing clarification regarding whether a situation is eligible for appeal, and assisting the student with preparing an appeal and with the appeal process. The entire Scholastic Advancement and Appeals Policy is at the following URL: [http://www.ucdenver.edu/academics/colleges/pharmacy/currentstudents/OnCampusPharmDStudents/PharmDResources/Documents/SSPPSS\\_AAC\\_Policy\\_09-26-2014.pdf](http://www.ucdenver.edu/academics/colleges/pharmacy/currentstudents/OnCampusPharmDStudents/PharmDResources/Documents/SSPPSS_AAC_Policy_09-26-2014.pdf)

#### **Discrimination**

Grievances related to diversity issues (or any associated retaliation) including but not limited to race, color, national origin, sex, age, disability, creed, religion, sexual orientation or veteran status can be directed to the Associate Dean for Student Affairs, the Director of Student Services in the OSS, the University of Colorado Anschutz Medical Campus Employment Rights Compliance and Investigations Officer at 303-724-9694. The University does not discriminate in admission and access to, or treatment and employment in, its educational programs and activities. The university policy on Non-discrimination can be viewed at <http://www.cu.edu/regents/laws-and-policies/regent-laws/article-10-nondiscrimination> (<http://www.cu.edu/regents/laws-and-policies/regent-laws/article-10-nondiscrimination/>).

#### **Sexual Misconduct Grievances**

Grievances related to sexual misconduct (or any associated retaliation whether on or off campus) can be directed to the Director of Student Services or the Assistant Dean for Student Affairs or the University of Colorado Denver Title IX Coordinator at 303-315-0126 or 1-844-CU-TITLE (288-4853). Any faculty or staff member who is considered a responsible employee, as defined in Section III, who witnesses or receives information regarding any possible sexual misconduct prohibited herein is required to promptly report to the Title IX Coordinator or designee all known details about the alleged sexual misconduct. The form for reporting sexual misconduct can be found at this link: <http://www.ucdenver.edu/policy/TitleIX/Pages/Title%20IX%20Report%20Process.aspx>

#### **Disability Student Accommodations**

The Office of Disability Resources and Services (DRS) has the responsibility of determining a student's need for accommodation. This determination is made through a two-part process of an intake interview and reviewing documentation of the disability. If the DRS staff determines a student is eligible for accommodations, the DRS is responsible for coordinating the accommodations.

If the student believes the accommodation(s) provided are not reasonable, the below-listed procedure shall be followed. While the following time limits should not be exceeded, the goal of the DRS staff is to accomplish each step as quickly as possible.

1. The student schedules a meeting with the DRS staff member who evaluated the original accommodation request and discuss the matter. If an accommodation is related to a specific course, the student's faculty member may be asked to attend the meeting.
2. If the student is not satisfied with the outcome of the meeting, the student should make an appointment to meet with the Director of the Office of Disability Resources & Services within ten (10) working days

of the date of the meeting with the DRS staff member. The Director will review the matter, allowing all interested parties an opportunity to submit relevant information, statements and documentation. The Director will make a decision regarding the grievance within ten (10) working days of the meeting with the student and attempt to notify the student immediately. Notice may be written, oral, telephonic or electronic mail.

3. If the student is not satisfied with the result of the meeting with the Director, the student can request an ADA Grievance form. This form should be completed and submitted to the ADA Coordinator within ten (10) working days from the date of the student's receipt of the decision resulting from the meeting with the Director.
4. After the ADA Coordinator receives the grievance form, he/she will conduct a review of the student's grievance. This review may involve meeting with the student, DRS staff, a faculty member and/or other staff members. In filing an appeal with the ADA Coordinator, the student thereby gives the ADA Coordinator permission to review the student's documentation and file.
5. The ADA Coordinator will make a final decision regarding the ADA grievance within thirty (30) working days of receiving the ADA Grievance form. This decision will be communicated to the student in writing with a copy provided to the Office of Disability Resources and Services and other appropriate college/university staff.

Office of Disability Resources and Services, Building 500, Rm Q-20-EG305, (303) 724-5640; 303-724-8428 Fax (303) 724-5641 <http://www.ucdenver.edu/student-services/resources/disability-resources-services/accommodations/Pages/grievance-policy.aspx>.

#### **Academic Dishonesty and Student Conduct**

The SSPPS Student Ethics and Conduct Code exists to promote honorable conduct by all students in the school and instill a life-long commitment to the principles embodied within the code. Its purpose is to create an environment where honesty, integrity and respect are rewarded and unethical, dishonest or disrespectful behaviors are prevented, deterred or do not exist. Ultimately, the value of the code depends on students monitoring their own behavior and discouraging violations of the code by others. Students are obligated to self-report, i.e., file an incident report for suspected or substantiated violations of the code which they may have committed, and to report suspected or substantiated violations of the code committed by other students. Failure to report a violation is itself considered a violation of the code. The Student Ethics and Conduct Code can be found at [http://www.ucdenver.edu/academics/colleges/pharmacy/currentstudents/OnCampusPharmDStudents/PharmDResources/Documents/SOP\\_Student\\_Ethics\\_and\\_Conduct\\_Code\\_2012.pdf](http://www.ucdenver.edu/academics/colleges/pharmacy/currentstudents/OnCampusPharmDStudents/PharmDResources/Documents/SOP_Student_Ethics_and_Conduct_Code_2012.pdf). The incident report form can be found at the following URL: [http://www.ucdenver.edu/academics/colleges/pharmacy/currentstudents/OnCampusPharmDStudents/PharmDResources/Documents/SECC\\_Incident\\_Report\\_Form.pdf](http://www.ucdenver.edu/academics/colleges/pharmacy/currentstudents/OnCampusPharmDStudents/PharmDResources/Documents/SECC_Incident_Report_Form.pdf).

#### **The Ombuds Office**

The Ombuds Office at the University of Colorado Denver | Anschutz Medical Campus provides an alternative forum for prompt, impartial, and confidential discussion for individuals to review options for the informal resolution of differences. Contacting the Ombuds Office is a voluntary process and neither the office nor any other entity or person may compel a visitor to utilize its services. We assist people with disagreements and a variety of conflict-related issues, such as: working conditions, interpersonal interactions, grades, policies and procedures, sexual harassment, discrimination, and disciplinary actions. The Ombuds Office possesses no formal decision-making authority, but rather provides options and resources for visitors in attempting to resolve their conflicts.

More information can be obtained on the Ombuds website at <http://www.ucdenver.edu/about/departments/OmbudsOffice/Pages/Students.aspx> or by contacting the office at 303-724-2950 or visiting the office at Building 500, Room 7005C.

#### American Council on Pharmacy Education

Grievances not addressed by policies described above or grievances related to American Council on Pharmacy Education (ACPE) accreditation standards are governed by policies and procedures described in Appendix J. ACPE standards address but are not limited to the SSPPS academic curriculum, policies and procedures regarding implementation and assessment of the curriculum and policies and procedures regarding students, faculty, facilities and resources. For reference, ACPE Standards can be found at [https://www.acpe-accredit.org/pdf/S2007Guidelines2.0\\_ChangesIdentifiedInRed.pdf](https://www.acpe-accredit.org/pdf/S2007Guidelines2.0_ChangesIdentifiedInRed.pdf) or the ACPE homepage at [www.acpe-accredit.org/](http://www.acpe-accredit.org/), click on the "Standards" tab at the top of the page and finally on "Standards and Guidelines" in either the PDF or Word format to access the Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree, Effective July 1, 2007. The ACPE complaints policy can be found at <https://www.acpe-accredit.org/students/complaints.asp>.

## Online Exam Policy

Online examinations allow students the flexibility to sit the examination in an environment of their choice. To ensure the integrity of the examination and that no student may have an unfair advantage over other students, the online examinations are monitored by Proctorio. Each student must undergo an initial identification check and subsequently conduct an initial environmental scan as well as scan intermittently during the examination. Live, third party proctors will monitor video feeds from student computers and prompt students to complete appropriate environmental scans. The number of scans is dictated by a random process, but can be increased if students are detected as not adhering to examination instructions. It is each student's responsibility to follow this policy, as well as additional examination instructions from the course director and maintain an appropriate examination environment. Failure to do so may result in an examination grade penalty (up to and including a grade of zero), the requirement to take exam in a specific environment, and/or a referral to the Student Ethics and Conduct Committee. For further information on best practices for taking an online examination, please refer to the online examination tip sheet.

An appropriate examination environment includes:

- An external "gooseneck" camera (one has been provided by the school) must be used for all exams
- A workspace that is a hard surface, free of any clutter, reference materials, and other electronic devices (including cell phones, tablets, smart watches, monitors, keyboards, gaming consoles, etc.) during the examination\*. e.g., a bed is not an appropriate examination environment  
\*Media devices are not allowed while the student has access to his/her examination. The only exception to the previous statement is that students are expected to access a phone or email to contact an instructional designer if they encounter technical issues during the examination and are unable to resolve the issue with Proctorio's technical support agents
- A well-lit environment in which the student's full face, including eyes, are in view of the webcam at all times (avoid backlight from a window or light source located directly opposite the placement of the camera)
- If calculator use is permitted by the course director for the examination, students may only use the imbedded Proctorio calculator. External calculators are not permitted.

- Unless stated otherwise by the course director, one blank sheet of 8.5 by 11" paper that has both sides visible and presented to the camera during room scans. The scratch paper may be used for notes, calculations, etc. Scratch paper must be properly destroyed (tearing the scratch paper in small 1" pieces) in front of the webcam after examination
- Headsets, earbuds, earphones are not present
- No other background computer programs are running
- The environment is free of any other individuals

Appropriately taking an examination includes:

#### *Initial identification check*

Students must present either their university issued badge or a state identification card during the ID verification process.

#### *Exam window*

Students must start their exam within 30 minutes of the start of the exam window.

#### *Initial environmental scan*

Before gaining access to examination questions, all students are expected to conduct an appropriate environmental scan (by scanning the area around her/his computer to verify that it is free of materials or people that may provide an unfair advantage to the student). Students must understand the initial environmental scan must include all of the following:

- the desk/work-space
- a complete view of the computer including USB ports and power cord connections
- a 360-degree view of the complete room
- **slow, deliberate, and systematic** scans to allow proctors a clear view of the entire exam environment

The live, third-party proctors will evaluate all environmental scans as they occur during each examination. Students who do not adequately complete an environmental scan may be prompted by a live proctor to repeat their scans until the entire environment is viewed, e.g., re-scan work-space or floor. In addition, the live, thirdparty proctors may ask students to alter their environment until it is deemed suitable for the examination, e.g., remove other electronic devices, extraneous papers, books, etc. A student may be prohibited from proceeding into the examination until the live proctor is satisfied that the environment is free of inappropriate materials.

#### *Maintaining a secure examination environment*

During the examination, students are required to maintain a secure examination environment by conducting the following actions:

- Keeping full face, hands, workspace including desk, keyboard, monitor, and scratch paper, in full view of the webcam
- Not leaving the examination environment, unless a 3 minute bathroom break is permitted by the course director. In this circumstance, the examination must be left open and running and any scratch paper must be left at the computer
- Otherwise remaining in the originally scanned examination environment for the entirety of the examination
- Using the Proctorio Shield for any technological problems encountered and contacting the instructional designers immediately if problems cannot be resolved within 10 minutes of contacting Proctorio
  - Students who wait to contact the instructional designer after finishing the exam or after the exam window is closed may not have access to any retroactive assistance (e.g. a student will not

be permitted to retake the examination or be given additional time).

Not maintaining a secure examination environment or moving from one area to another during an examination may trigger the software to notify the live, third-party proctors and this may result in the requirement for increased environmental scans. If a student moves from one area to another area during the examination or something occurs that may be construed as examination misbehavior, it is in the student's best interest to perform a scan to document the secure environment, even if the student is not prompted to do so by the live proctor. Environmental scans are designed to not only ensure the integrity of the examination, but also to protect students from being falsely accused of inappropriate examination behavior. Repeating scans will expend time designated for the examination, thus reducing the amount of time to complete the examination.

#### *Online Examination Committee Review:*

Following the conclusion of an examination, Proctorio reviews each student's performance for any abnormal behavior and submits a report to the School's Online Examination Committee (OEC). Prior to the OEC review, the TA's view exams to identify areas of concern. The OEC then reviews student examination behavior for adherence to this policy and the Student Ethics and Conduct Code. While the OEC serves as a source of some consistency among student cases, each situation is understood to have unique circumstances and will be addressed on a case-by-case basis. The OEC takes the following action steps as needed:

#### *No concerns*

No further action is taken

#### *Student intervention is required*

Students may receive an email or a request to meet with the OEC to discuss their behavior and clarify policy and future expectations. In either circumstance, an email summary of behaviors that must be corrected during future examinations will be sent to the student.

#### *Student penalty is required*

- Recommend an examination grade of zero to the course director. Subsequently, the course director will review the report provided by Proctorio and the video recording, with a member of the OEC. Upon completion of this review, the course director will take final action, which may include a point penalty on 3 the examination, up to and including a grade of zero. The course director will notify the student of any final actions taken.
- Require student takes future exams in a designated setting (this may include requiring the student to take the exam on campus).

#### *Student referral to the Student Ethics and Conduct Committee*

Students who are suspected of having violated the Student Ethics and Conduct code will be referred to the Student Ethics and Conduct Committee (SECC). The OEC will submit an incident report and all case information to the SECC.

#### *Record Keeping*

The OEC will maintain records of student names, behaviors noted, committee and course director findings and communications with parties involved.

#### *Student Appeals*

Appeals of OEC and course director decisions will follow current Student Advancement & Appeals and Student Ethics & Conduct policies. Students wishing to appeal a final course grade impacted by a penalty for examination misbehavior should contact the Office of Student Services to understand their options.

## Professional Dress & Appearance Code

The overarching principles with respect to dress and appearance are that the fields of pharmacy and health care are fairly conservative professions. Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS) students will be required to meet professional dress and appearance standards for some required coursework and for all curricular and extra-curricular (i.e., associated with the school's student organizations) experiential, community and hospital site visits. It is important to note that students may not be able to be placed into required practice experiences if they are not able to meet the standards of the site. This may impact a student's ability to progress and graduate from the program. The following parameters have been developed as a general guide; however, it is each student's responsibility to understand and adhere to the guidelines associated with a specific situation or site.

### **LAB COATS**

A short (hip-length) white lab coat with long sleeves is required. Any CU logos must be compliant with campus and university standards; non-CU SSPPS logos and badges are not permitted.

### **PROFESSIONAL ATTIRE**

Male Students should wear: nicely pressed collared dress shirts, buttoned to the top button and tucked in at the waist, with a standard, bolo or bow tie. Ties should be tied properly not hanging loosely around the neck. Inappropriate ties are not acceptable. Business styled slacks (dress corduroy is permissible). Slacks should fit properly at the waist, undergarments should not be visible above the waistline of the slacks. Female Students should wear: nicely pressed business styled pants; the garment must be long enough to cover the midcalf. Business dresses, skirts and split skirts not more than two inches above the knee. Jean skirt or dress is permitted. Feet and legs should be covered by hosiery when the hem length of clothing is above the knee and should be appropriate to the clothing worn. Business styled shirts, blouses, sleeveless blouse or sweaters.

Inappropriate apparel includes: wrinkled, dirty or torn clothing, baseball caps, flip flops, tight-fitting leggings/stirrup pants, spandex, any kind or color of jeans, shorts, tee-shirts, short shirts, any type of sweat pants or sweat shirts, short skirts or revealing tops or pants (i.e., exposed shoulders, stomach, midriff, cleavage or buttocks), halter tops, tank tops, back-less tops or fatigues.

### **FOOTWEAR**

Student should wear professional looking shoes, boots or dress sandals. Footwear should be safe, clean and in good repair. In some settings, open toed-shoes are not permitted.

### **HAIR**

Hair should be clean and well groomed; with no extreme hairstyles or exotic hair colors. Beards, mustaches and sideburns must be neat, trimmed and well groomed. Please Note: If your hair style or color is considered extreme you may be asked to change it before you can complete curriculum requirements.

### **HYGIENE**

Appearance should be neat and clean with a professional image. Body odor, bad breath and cigarette smoke, etc. are offensive to patients and co-workers. Necessary steps should be taken to prevent these problems. Fingernails are to be clean and of a normal length. Common sense and moderation should be employed in the application of fragrances, cosmetics, etc., with some settings prohibiting the use of any fragrance.

### **JEWELRY**

Students should limit jewelry such that it does not come in contact with patients or customers or interfere with machinery or equipment. All facial, tongue, and visible body piercings must be removed while on duty, with the exception of earrings (limit 2 in each ear). Please Note: gauged



piercings, even if removed, may be prohibited at certain sites and may prevent a student from completing curriculum requirements.

#### **BODY ART (Tattoos)**

Students are required to cover tattoos with appropriate coverings in order to create a non-threatening professional environment for patients and visitors. Coverings typically include wearing collared or long sleeve shirts, etc. Please Note: Inability to properly cover tattoos, branding or other body art may prevent you from completing curriculum requirements.

#### **IDENTIFICATION BADGE (Student ID)**

An unaltered Student Identification Badge must be on your person and remain visible while on campus and at your experiential site. In some settings, this may also include a name badge with intern license number. Badges should be worn above the waist or chest-high, either clipped to clothing or around the neck.

#### **RELIGIOUS DIVERSITY**

SSPPS recognizes religious diversity. Exceptions to this policy will be reviewed on a case by case basis upon reasonable advance request by an applicant or student.

## **Safe Behavior in the Practice Environment Policy**

If a Skaggs School of Pharmacy and Pharmaceutical Sciences student is deemed to be unsafe in his/her performance in the practice environment due to an inability to meet the Technical Standards (the student is referred to this policy on the SSPPS website), the Experiential Education Committee (EEC) and the Office of Student Services (OSS) are required to take action to ensure a safe environment for students, patients, and other personnel. This action may require that the student be immediately removed from the practice environment. For any student observed to be unsafe due to a temporary or permanent inability to meet any of the Technical Standards, it is the duty of qualified pharmacy or other healthcare personnel to report these observations to the Office of Experiential Education.

The EEC in collaboration with OSS reserves the right to research the issues and modify the student's educational plan within the experiential program if deemed necessary. In addition, the EEC may determine that the situation warrants external professional evaluation. Professional evaluations can include the assessment of the student in question by a variety of professionals capable of assessing the situation. These professionals may include but are not limited to health care providers, mental health care providers, drug and alcohol counselors, English as a Second Language instructors, Disability Resource Services, or Peer Assistance Services, the entity charged by the State Board of Pharmacy to assess interns' ability to practice safely and competently.

It is the student's responsibility to undergo evaluation. If the student does not complete the evaluation they will not be allowed to proceed in the curriculum. The OSS will serve to assist the student to arrange for the appropriate evaluation (or ongoing evaluations) and forward the evaluations to the EEC as appropriate. The EEC will then respond to the evaluation report and responses may range from taking no action, modifying the student's experiential education plan, requiring mandatory changes in student behavior, requiring the student to take a leave of absence from the program in order to address specific concerns, or withdrawing the student from his/her experiential education experience. For any of these situations, the student may request review by the Scholastic Advancement and Appeals or other committee. If appropriate, OSS in collaboration with EEC will develop a reentry plan for the student including implementation of the leave of absence process if necessary. The plan will address any additional work that may be recommended in

order to remedy the specific set of conditions that have led to the leave of absence or withdrawal from the program.

## **Student Ethics & Conduct Code**

### **SECTION I. INTRODUCTION**

The credibility of health care professionals is based, to a large extent, on the high degree of trust accorded by patients and other health care providers. Students entering the health care professions have a particular obligation to conduct themselves at all times in a manner that reflects honesty, integrity and respect for others.

The University of Colorado School of Pharmacy is committed to promoting in all of its students a sense of professionalism and a desire to adhere to the highest professional standards that pertain to pharmacy. Students are expected to exhibit the highest standards of professional conduct, avoiding impropriety and the appearance of impropriety.

The Student Ethics and Conduct Code exists to promote honorable conduct on the part of all students in the school and instill in students a life-long commitment to the principles embodied within the code.

Students are required to engage in responsible academic and social conduct that reflects credit upon the profession, the school and the university. The code includes rules, regulations and professional expectations (Appendix A) and sanctions (Appendix B). Student Ethics and Conduct Code complements the school's Substance Abuse Policy and other school policies.

Ultimately, the code depends on students monitoring their own behavior and discouraging violations of the code by others. Students are obligated to self report, i.e., file an incident report (Appendix C) for suspected or substantiated violations of the code which they may have committed, and to report suspected or substantiated violations of the code committed by other students. Students who wish to discuss a potential breach of the Code are encouraged to meet with the Associate Dean for Academic Affairs, Associate Dean for Student and Professional Affairs, or chair of the Student Ethics and Conduct Committee.

This Code provides guidelines for students under the authority of the Laws of the Regents, Article 7, Part B, requiring the development of student codes of conduct. This code was approved by the student council on November 5, 2010 and by the faculty on October 22, 2010. This Student Ethics and Conduct Code shall apply to students in the entry-level and nontraditional PharmD programs of the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences. Each student shall be responsible for his or her conduct from the time of application for admission through the actual awarding of a degree or permanent withdrawal from the professional program, at all times and in all locations. This Student Ethics and Conduct Code shall apply even if the student leaves school while a disciplinary matter is pending.

### **SECTION II. RELATIONSHIP OF THE STUDENT ETHICS AND CONDUCT CODE TO LOCAL, STATE AND FEDERAL LAWS AND TO PHARMACY LICENSING AGENCY RULES AND REGULATIONS**

The university adheres to all appropriate local, state and federal laws and to pharmacy licensing agency rules and regulations. It cooperates with law enforcement and other officials in all matters. Any alleged violation of local, state or federal laws will be referred to the appropriate law enforcement agency.

A student must notify the Associate Dean for Academic Affairs, within seven calendar days, of the filing of any legal charges or proceedings and the disposition of such proceedings, wherein it is alleged that a student has violated any criminal law, including but not limited to "driving under the influence" and "driving while ability impaired". Convictions, including



a guilty verdict, a plea of guilty or nolo contendere accepted by the court, or a deferred judgment or sentence, for violation of local, state, or federal criminal laws shall be considered unprofessional conduct for purposes of this code.

The discipline process can be initiated by a report from any student, faculty, administrative staff, or other member of the university/campus community, or from police or court reports. This process is initiated through the submission of an incident report or other written account to the Associate Dean for Academic Affairs.

Proceedings initiated under this Student Ethics and Conduct Code are separate from civil or criminal proceedings that may relate to the same incident. Investigations or proceedings by the university are not postponed while criminal or civil proceedings are pending unless otherwise determined by the Associate Dean for Academic Affairs.

### **SECTION III. CONDUCT, PROCEDURES AND SANCTIONS**

This code shall be available to those applying for admission. Prior to entering the academic program, all entry-level and nontraditional PharmD students must provide a signed statement or electronic equivalent that they have received and read the Student Ethics and Conduct Code and that they have made a personal commitment to uphold the code and abide by its processes and principles.

The primary responsibility for reporting violations of the Student Ethics and Conduct Code rests with the individual student who has violated the code. Because responsibility for upholding the code is shared by all members of the Skaggs School of Pharmacy and Pharmaceutical Sciences, documented reports of misconduct may originate from any student or member of the faculty or staff, or others having knowledge of alleged misconduct. Failure to report a perceived violation shall itself be deemed a violation. Upon observing a possible violation of the Student Ethics and Conduct Code, students, faculty, staff and teaching assistants are obligated to:

- File an incident report as outlined in Section IIIC below. If necessary, students should seek advice from the Associate Dean for Academic Affairs, the Associate Dean for Student and Professional Affairs, or the chair of the Student Ethics and Conduct Committee.
- Maintain confidentiality regarding the incident.

### **III A. RULES, REGULATIONS AND PROFESSIONAL EXPECTATIONS**

Students are required to engage in responsible academic and social conduct that reflects positively upon the profession, the school and the university.

The conduct listed in Appendix A is prohibited, as are attempts to commit and aiding, abetting, or inciting others to commit conduct prohibited by this code. Any student found to have committed or to have attempted to commit the conduct listed in Appendix A is subject to disciplinary sanctions.

### **III B. STUDENT ETHICS AND CONDUCT COMMITTEE**

The School of Pharmacy has a standing Student Ethics and Conduct Committee that serves as an advisory committee to the Associate Dean for Academic Affairs. The primary function of the committee is to examine alleged violations of the Student Ethics and Conduct Code and to make recommendations to the Associate Dean of Academic Affairs. The composition of the committee shall consist of student and faculty members to include:

#### **STUDENT MEMBERS**

The student membership on the Student Ethics and Conduct Code Committee shall include one representative from each of the four classes

in the entry-level PharmD program for cases involving students in the traditional program. Each student shall have full voting privileges.

The student membership on the Student Ethics and Conduct Code Committee shall include four representatives from the non-traditional PharmD program for cases involving students in the non-traditional program. Student members shall be appointed by the Associate Dean for Academic Affairs upon recommendation of the Director of the Nontraditional PharmD Program. Each student shall have full voting privileges.

#### **FACULTY MEMBERS (WITH FULL VOTING PRIVILEGES)**

The faculty membership on the Student Ethics and Conduct Code Committee shall include four faculty members with one of the four faculty members appointed as chair of the committee. Each faculty member shall have full voting privileges. Membership and chair appointments shall be made by the Dean according to current school policy. In the absence of the chair, the vice-chair shall serve as chair of the committee.

#### **STAFF MEMBER**

One staff member with non-voting privileges shall be appointed each year by the dean to assist the chair in an administrative capacity including the documentation of all committee proceedings.

#### **QUORUM**

Three faculty members with full voting privileges shall be required for a quorum. Three student members with full voting privileges shall be required for a quorum.

#### **TERMS OF OFFICE**

Terms of office for entry-level student members of the committee shall be determined by the student council. Nontraditional student members shall serve on an *ad hoc* basis.

Faculty members shall normally be appointed to renewable terms.

The Dean within current school policy, will nominate one of the faculty appointments as chair-elect. That individual will serve a three-year appointment (one year as chair-elect, one year as chair and one year as immediate past chair).

### **III C. REPORTING PROCEDURES**

Electronic mail (e-mail) is an accepted official form of written communication in the School of Pharmacy. E-mail may be used to communicate information regarding ethics code policies and procedures. E-mail correspondence between members of the Student Ethics and Conduct Committee and other necessary parties is permitted but students should be referred to by an identification or case number and not by name. Written communications in hard copy format will be used when appropriate. All correspondence may be subject to external review under the Freedom of Information Act.

#### ***Alleged code violations***

A report of a suspected violation of the Student Ethics and Conduct Code should be made, whenever possible, within 15 calendar days upon observing or learning of suspected code violation. The reporting mechanism shall consist of a standardized form known as the Ethics Code Incident Report Form (Appendix C) and upon completion shall be submitted to the Associate Dean for Academic Affairs. The 15-day reporting period may be waived by the Associate Dean for Academic Affairs if, in his/her judgment, circumstances warrant.

An individual who submits an Incident Report shall be permitted to withdraw the report at her/his discretion, with the approval of the Associate Dean for Academic Affairs, at any time prior to a formal meeting of the Student Ethics and Conduct Code Committee to hear the case.

Copies of the Ethics Code Incident Report Form are available as Appendix C to the Student Ethics and Conduct Code (available in the Student Bulletin).

In the event a committee member who personally observes an alleged violation and files an incident report or who has a conflict of interest, he/she will be excused from the committee for that case and may be replaced, if necessary, by an individual appointed by the Associate Dean for Academic Affairs or, if a student, by the Student Council. Information regarding the disciplinary hearing and committee deliberation of an alleged violation of the Student Ethics and Conduct Code shall be considered confidential by all parties involved. Violation of confidentiality is considered a breach of ethical conduct.

### III D. PROCEDURES OF THE STUDENT ETHICS AND CONDUCT COMMITTEE

#### 1. *Events prior to a formal committee hearing*

Upon receipt of the incident report, the Associate Dean for Academic Affairs will within 15 calendar days (under ordinary circumstances):

- Inform the accused student and the chair of the Student Ethics and Conduct Committee about the receipt of the incident report. The Associate Dean for Academic Affairs may allow an accused student to self-submit an incident report.
- Notify the accused student(s) that his/her written response must be submitted within seven calendar days and that she/he must meet with the Associate Dean for Academic Affairs.
- In cases of alleged sexual harassment or sexual misconduct, or other allegations of civil rights violations, the Associate Dean for Academic Affairs will refer the investigation to the campus civil rights officer.
- In assessing whether the matter should be referred to the Student Ethics and Conduct Committee for investigation the Associate Dean for Academic Affairs may conduct limited fact finding to determine whether there is evidence to support the allegations. The Associate Dean for Academic Affairs will not assess the credibility of witnesses but will instead make his/her determination based on whether the alleged facts if proven true may constitute a violation of the honor code and whether there is evidence to support those allegations.
- Make a determination. The Associate Dean for Academic Affairs, based on the information available, will choose to:

A) Dismiss the case if, in her or his judgment, there is insufficient evidence to justify forwarding the case to the Student Ethics and Conduct Committee. The decision by the Associate Dean for Academic Affairs to dismiss a case shall be made in consultation with and with the concurrence of the Chair of the Student Ethics and Conduct Committee. In such circumstances, the Associate Dean for Academic Affairs will prepare a written report justifying her/his decision for the individual(s) who submitted the incident report and for the Student Ethics and Conduct Committee.

B) Resolve the case to the satisfaction of the individual(s) who submitted the incident report without referring the case to the Student Ethics and Conduct Committee. The decision by the Associate Dean for Academic Affairs to resolve a case shall be made in consultation with and with the concurrence of the Chair of the Student Ethics and Conduct Committee. In such circumstances, the Associate Dean for Academic Affairs will prepare a written report of the case for the Student Ethics and Conduct Committee.

C) Refer the case to the Student Ethics and Conduct Committee for investigation, determination of the facts of the case and/or recommendation of sanctions. In such circumstances, the Associate Dean for Academic Affairs will first meet with any student accused of a Student Ethics and Conduct Code violation and inform her/him that an investigation is underway. Without disclosing any details of the investigation, the Associate Dean for Academic Affairs will remind

the student that the Code requires any student who has committed an offense to self report that offense and give the student the opportunity to submit a formal self (incident) report.

- Keep confidential the names of the individual(s) reporting the alleged code violation, witnesses and potential witnesses except as described below, or as required by school or university policy, or by law or statute.

After receiving a request from the Associate Dean for Academic Affairs to provide recommendations regarding a case, the chair of the Student Ethics and Conduct Committee will notify the accused student(s) in writing about the following:

- the nature of the charge and the evidence to support the charge.
- the name(s) of the individual(s) who submitted the incident report and the names of witnesses and potential witnesses.
- that retaliation, harassment or any direct or indirect attempt by the student or a third party to contact and/or discuss the case with the individual(s) who submitted the incident report form and any witness or potential witness named in the case documentation shall be considered a breach of the Code.
- that her/his name will be forwarded to the Associate Dean for Student and Professional Affairs and the Director of Student Services and that they will be informed that she/he has been accused of a breach of the Code and about the nature of the alleged breach. The student is encouraged but not obliged to discuss his or her case with the Associate Dean for Student and Professional Affairs and/or the Director of Student Services. At the student's discretion, the Associate Dean for Student and Professional Affairs, the Director of Student Services or anyone else chosen by the student may advise her/him in preparing her/his response.
- that the student may request to meet with the chair to review committee procedures and students' rights and responsibilities.
- that when more than one student is accused of misconduct in the same incident, each student may request a separate hearing.
- that the accused student(s) shall have at least seven calendar days from the date of notification regarding the case to prepare her/his response and that she/he has the option to waive that time requirement.
- the date, time and place of the Student Ethics and Conduct Committee hearing. That information will be given to the accused student at least seven calendar days in advance of the hearing unless the student elects to waive that time requirement. At the same time, the Associate Dean for Academic Affairs shall also be notified about the hearing.
- that, in cases related to a course which concludes prior to a final determination of the case, the student's final course grade will be determined by the Associate Dean for Academic Affairs after he/she has received the Student Ethics and Conduct Committee's recommendations and made his/her decision. If the committee recommends action that subsequently is approved by the Associate Dean for Academic Affairs, such action may alter the student's final course grade.
- that the student shall indicate whether he or she accepts or denies responsibility (and in instances in which more than one conduct violation is alleged, the student may accept or deny responsibility for each conduct violation). The Student Ethics and Conduct Committee will proceed with the hearing regardless of whether the accused student accepts or denies responsibility.

## 2. Procedures at the formal committee hearing

Prior to the Student Ethics and Conduct Committee hearing, the chair will ask the Student Ethics and Conduct Committee members (himself or herself included) whether there is any reason why they would be unable to render an unbiased opinion in the impending case. Committee members who disqualify themselves may be replaced by a faculty member chosen by the Associate Dean for Academic Affairs or, in the event that the disqualified member is a student, by the Student Council. Hearings will be conducted in an orderly manner and comprise at least two sessions: a disciplinary hearing and committee deliberation. An initial disciplinary hearing:

- must be conducted in the presence of the accused student regardless of her/his response except when her/his absence is without good cause, as determined by the committee chair.
- may exclude parties not having a role in the hearing at the sole discretion of the chair.
- may be conducted with one or more members, witnesses and the accused participating from a distance through electronic technology.
- may accommodate concerns for personal safety, well-being, and/or fears of confrontation during the hearing by means determined to be appropriate in the sole judgment of the committee chair.
- will permit the individual(s) reporting the incident and the accused student the opportunity to speak and present fully the evidence he or she has brought to the hearing.
- will permit members of the committee to question the individual(s) reporting the incident, the accused student(s) and witnesses. However, the accused student(s) and witness(es) are not permitted to question the individual(s) reporting the incident.
- will permit the accused student(s) to introduce and rebut information and provide on her/his behalf witnesses to the incident.
- will permit the accused student (at her/his own expense) and the Student Ethics and Conduct Committee to seek assistance from an advisor. The advisor may attend the hearing but she/he is not permitted to speak for the student or the committee; address the committee; or question the accused student or witnesses or committee members during the proceedings.
- will require all parties to keep the proceedings confidential. The university agrees to maintain confidentiality of the disciplinary hearing proceedings as permitted by law.

At the disciplinary hearing, the technical rules of evidence applicable to civil and criminal cases shall not apply. A single verbatim record of the disciplinary hearing shall be made by audiotape or digital recorder, and shall remain the property of the Skaggs School of Pharmacy and Pharmaceutical Sciences.

The Student Ethics and Conduct Committee will deliberate in closed session within seven days of the disciplinary hearing under normal conditions to determine whether the student was responsible for, or engaged in, the alleged conduct. Following this decision, as appropriate, the committee will deliberate to recommend appropriate sanction(s). During the deliberation of appropriate sanctions, the committee may consider any available documentation regarding student behavior and professionalism. Deliberations of the Student Ethics and Conduct Committee shall not be recorded.

- The standard that shall be applied in all cases brought before the committee is that, for a finding to be made against the accused student, the preponderance of the evidence in the majority opinion of the committee must be against the student.

- Within seven days of the closed session under normal circumstances, the Student Ethics and Conduct Committee will submit a written report and recommendation to the Associate Dean for Academic Affairs, and the chair and Associate Dean will meet to discuss the case and recommendation.
- The Associate Dean for Academic Affairs may accept or modify the recommendation of the committee. The Associate Dean for Academic Affairs shall notify the student in writing of her/his decision within fifteen calendar days by U.S. mail with delivery confirmation, or if circumstances prevent, as soon as possible thereafter. The Student Ethics and Conduct Committee members and the individual(s) who submitted the incident report shall be informed of the Associate Dean's decision and shall keep that information confidential.
- The decision of the Associate Dean for Academic Affairs shall be communicated to the Office of Student Services and other appropriate parties within the school, to the Board of Pharmacy, and to others as required by law. Such notification shall not occur until the opportunity for appeal has expired and the decision is considered final.

## III E. APPEAL PROCESS

The accused student or alleged victim of a violent crime may appeal the decision of the Associate Dean for Academic Affairs to the Dean in writing within fifteen calendar days after notification by the Associate Dean. The Dean will only reverse or modify the findings and recommendations of the Associate Dean of Academic Affairs if he/she concludes, by a preponderance of the evidence, that one of the following situations exists:

- (a) new information regarding the student's alleged violation of the Student Ethics and Conduct Code which was previously unknown to the student or the Committee is discovered;
- (b) there was an error in the process that prevented the student from presenting relevant information to the Committee that could have materially changed the Committee's decision; or
- (c) there is evidence that the Student Ethics and Conduct Committee or Associate Dean for Academic Affairs acted in an arbitrary or capricious manner.

The decision of the Dean shall be final. The Dean will communicate the decision in writing to the student by confirmation delivery and to the Associate Dean for Academic Affairs. The Dean may, at her or his discretion, convene an advisory committee to assist in reaching a reasonable conclusion to the case.

## III F. SANCTIONS

Sanctions listed in Appendix B may be applied when appropriate to individuals found to have violated the Student Ethics and Conduct Code. More than one of the sanctions may be imposed for any single violation. Failure to complete disciplinary sanction within required deadlines will result in a "hold" on the student's registration status.

All disciplinary actions taken against a student become a part of her/his file. All prior professionalism records and disciplinary actions noted in a student's file may be used in subsequent cases of code violations committed by that student and may result in harsher consequences than would otherwise have been the case.

The Associate Dean for Academic Affairs (or her/his designee) shall have the responsibility to determine that a student, found responsible for having engaged in an offense, meets all the conditions stipulated in disciplinary actions taken against the student by the school. All documentation relating to cases investigated by the Student Ethics and Conduct Committee shall be held by the Associate Dean for Academic Affairs (or her/his designee).

School of Pharmacy faculty will be informed of all Student Ethics and Conduct activity through the report of the chair at regular faculty meetings.

### III G. PROCEDURES FOR REVISION OF THE STUDENT ETHICS & CONDUCT CODE

Changes to the code may be initiated by students through the Student Council or by members of the faculty or administration. All recommended changes should be forwarded to the chair of the Student Ethics and Conduct Committee and the Associate Dean for Academic Affairs for consideration. The code revision will be drafted by the Student Ethics and Conduct Committee and reviewed by the Student Council and the faculty. Following additional revisions, the revised code will be sent to the Student Council for approval and to the faculty for approval. A simple majority of a quorum of each group shall be sufficient to revise the code.

### APPENDIX A.

#### Rules, Regulations, and Professional Expectations

Students are required to engage in responsible conduct that reflects positively upon the profession, the school and the university. The conduct listed below is prohibited, as are attempts to commit and aiding, abetting, or inciting others to commit conduct prohibited by this code.

Any student found to have committed or to have attempted to commit the following misconduct is subject to disciplinary sanctions:

1. Acts of dishonesty, including but not limited to the following:
  - a. Cheating, plagiarism, or other forms of academic dishonesty.
  - b. Furnishing false information to any university official, faculty member, or office.
  - c. Forgery, alteration, or misuse of any university document, record, or instrument of identification.
2. Violation of patient confidentiality, or of other established professional expectations for pharmacists.
3. Disruption or obstruction of teaching, research, administration, disciplinary proceedings, other school or university activities, including its public service functions on or off campus, or of other authorized activities when the conduct occurs on campus premises.
4. Physical abuse, verbal abuse, threats, intimidation, harassment, coercion, and/or other conduct that threatens or endangers the health or safety of any person. Abusive Conduct, defined as unwelcome conduct by an individual(s) that is sufficiently severe or pervasive that it alters the conditions of education or employment and creates an environment that a reasonable person would find intimidating, hostile or offensive. The determination of whether an environment is "intimidating, hostile or offensive" must be based on all of the circumstances of the case. These circumstances could include the frequency of the conduct, its severity, and whether it is threatening or humiliating. This policy should not be construed, and will not be enacted, to deny any student the right of free speech and expression.
5. Hazing, defined as an act which endangers the mental or physical health or safety of a student, or which destroys or removes public or private property, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in, a group or organization. The express or implied consent of the victim will not be a defense. Apathy or acquiescence in the presence of hazing are not neutral acts; they are violations of this rule.
6. Sexual Misconduct: Sexual Misconduct includes non-consensual sexual intercourse, non-consensual sexual contact and sexual exploitation or exposure.
  - a. Non-consensual sexual intercourse, defined as any sexual intercourse (anal, oral or vaginal), including sexual intercourse with an object, however slight, by one person upon another without consent.
  - b. Non-consensual sexual contact, defined as any sexual touching (including touching with an object) however slight, by one person on another without consent.
  - c. Sexual exploitation and/or exposure, defined as taking non-consensual, unjust or abusive sexual advantage of another for his/her own pleasure, advantage or benefit, or to pleasure, benefit or advantage anyone other than the one being exploited. Sexual Exposure occurs when a student engages in lewd exposure of the body done with the intent to arouse or satisfy the sexual desire of any person.
7. Stalking, defined as repeated conduct which reasonably and subjectively causes another person to fear for his/her safety or repeated conduct which causes a person to alter his/her activities in response to the repeated conduct. Such repeated conduct may include but is not limited to any of the following: following or approaching a person or a member of that person's family or household; contacting a person or a member of that person's family or household whether or not conversation ensues; and placing a person or a member of that person's family or household under surveillance.
8. Attempted or actual theft of and/or damage to property of the university or property of a member of the academic community or other personal or public property, on or off campus, including (but not limited to) possessing property known to be stolen, or taking property of another without consent, even with an intent to return the property.
9. Failure to comply with directions of university officials or law enforcement officers acting in performance of their duties and/or failure to identify oneself to these persons when requested to do so.
10. Unauthorized possession, duplication or use of keys or other access device to any university premises or unauthorized entry to or use of university premises.
11. Violation of any school or university policy, rule, or regulation published in hard copy or available electronically on the school or university website, included (but not limited to):
  - a. violating the university policy on sexual harassment or non-discrimination.
  - b. behavior which exhibits general disregard for school policies, or pharmacy professionalism.
12. Misdemeanor or felony violations of any federal, state, or local law, or behavior that exhibits general disregard for the law.
13. Use, possession, manufacturing, or distribution of marijuana, heroin, narcotics, or other prescription and/or controlled substances except as expressly permitted by law.
14. Use, possession, manufacturing, or distribution of alcoholic beverages (except as expressly permitted by university regulations and local law), or public intoxication. Alcoholic beverages may not, in any circumstance, be used by, possessed by or distributed to any person under twenty-one (21) years of age.
15. Illegal or unauthorized possession of firearms, explosives, other weapons, or dangerous chemicals on university premises or use of any such item, even if legally possessed, in a manner that harms, threatens or causes fear to others.
  - a. Possession of a harmless instrument designed to look like a firearm, explosive, or dangerous weapon is also prohibited by this policy (including, but not limited to, BB guns, pellet guns, martial arts equipment, and knives with a blade over 3" in length).



- b. As mandated by Regent's Policy 14I, in the case of a student who is found responsible via the Student Conduct Code process to have intentionally or recklessly used or possessed a weapon in a way that would intimidate, harass, injure, or otherwise interfere with the learning and working environment of the university, the minimum disciplinary sanction shall be expulsion. In the case of a harmless instrument as described in section 14a., the minimum sanction shall be expulsion if the student used the item with the intent to cause fear in or assault to another person.
- c. Mere possession of firearms, explosives, fireworks, incendiary devices, ammunition, other weapons, or instruments designed to look like any of the above will result in suspension unless mitigating factors are present.
16. Participating in an on-campus or off-campus demonstration, riot or activity that disrupts the normal operations of the university and/or infringes on the rights of other members of the university community; leading or inciting others to disrupt scheduled and/or normal activities within any campus building or area.
  17. Obstruction of the free flow of pedestrian or vehicular traffic on university premises or at school or university sponsored or supervised functions.
  18. Interfering with, obstructing or disrupting police or fire responses. This prohibition includes (but is not limited to):
    - a. Resisting arrest.
    - b. Failing to abide by the directions of a peace officer.
    - c. Tampering with, impairing, disabling, or misusing fire protection systems such as smoke detectors, fire extinguishers, sprinklers, or alarms.
    - d. Failing to evacuate during a fire alarm.
    - e. Arson/setting fires.
  19. Conduct that is disorderly, lewd, or indecent; breach of peace; or aiding, abetting, or procuring another person to breach the peace on university premises or at functions sponsored by, or participated in by, the school, university or members of the academic community. Disorderly conduct includes (but is not limited to): Use of electronic or other devices to make an audio or video record of another person without that person's express consent and/or knowledge when such a recording is likely to cause injury or distress to the individual being recorded.
  20. Theft or other abuse of computer facilities and resources, including (but not limited to):
    - a. Unauthorized entry into a file, to use, read, or change the contents, or for any other purpose.
    - b. Unauthorized transfer of a file.
    - c. Use of another individual's identification and/or password.
    - d. Use of computing facilities and resources to interfere with the work of another student, faculty member or university official.
    - e. Use of computing facilities and resources t
    - f. Use of computing facilities and resources to interfere with normal operation of the school or university computing system.
    - g. Use of computing facilities and resources in violation of copyright laws.
    - h. Any violation of school or university Computer Use Policy.
  21. Abuse of the Student Ethics and Conduct Code, including (but not limited to):
    - a. Failure to file an incident report.
    - b. Failure to obey the notice from a Student Ethics and Conduct Committee or school official to appear for a meeting or hearing as part of the Student Ethics and Conduct Code.
    - c. Falsification, distortion or misrepresentation of information before a Student Ethics and Conduct Committee.
    - d. Disruption or interference with the orderly conduct of a Student Ethics and Conduct Committee proceeding.
    - e. Submission of an incident report in bad faith.
    - f. Attempting to discourage an individual's proper participating in, or use of, the student conduct system.
    - g. Attempting to influence the impartiality of a member of a Student Ethics and Conduct Committee prior to, and/or during the course of, the Student Ethics and Conduct Committee proceeding.
    - h. Harassment (verbal or physical) and/or intimidation of a member of a Student Ethics and Conduct Committee prior to, during, and/or after a proceeding.
    - i. Failure to comply with the sanction(s) imposed under the Student Ethics and Conduct Code.
    - j. Influencing or attempting to influence another person to commit an abuse of the student ethics and conduct code.
    - k. Retaliating against or discouraging an individual from participating in a university process, acting to improperly influence the Student Ethics and Conduct Committee, or the unauthorized release of confidential student or university information/records.

## APPENDIX B.: IV F. SANCTIONS

The following sanctions may be applied when appropriate to individuals found to have violated the Student Ethics and Conduct Code. More than one of the sanctions listed below may be imposed for any single violation. Failure to complete disciplinary sanctions within required deadlines will result in a "hold" on the student's registration status.

### 1. *No action*

The Associate Dean for Academic Affairs finds that the charges are unsubstantiated or exonerates the student. The decision letter specifies that the charges are cleared and no disciplinary action is taken.

### 2. *Warning or written reprimand*

A student may be given a warning or written reprimand for minor infractions.

### 3. *Failing grade*

A zero or fail grade for an assignment, exam, or course. The student's ability to continue her/his academic program without interruption is dependent on her/his academic standing.

### 4. *General disciplinary probation*

Probation is for a designated period of time, implemented by semesters, during which the student is required to show appropriate changes in attitude and behavior. Probation may include specified conditions and actions such as restrictions or limitations in certain activities or privileges or notifying the state Board of Pharmacy. Probation is considered stronger disciplinary action than a reprimand but the student is permitted to continue her/his academic program if she/he is in good academic standing. A violation of the terms of General Disciplinary Probation, or subsequent misconduct after discipline, is grounds for further disciplinary action, including loss of good standing, suspension, or expulsion.

### 5. *Disciplinary probation/Loss of good standing*

Probation is for a designated period of time during which appropriate changes in attitude and behavior are expected to occur. Specific sanctions or restrictions may be imposed as a part of this probation. A student on this disciplinary probation is not in good standing with the school. Loss of good standing shall preclude eligibility to represent the school, to serve on a school committee, and for recognition by the School including any office held in a student organization. A violation of the terms of disciplinary probation, or



subsequent misconduct, is grounds for further disciplinary action, including suspension, or expulsion.

6. *Discretionary/educational sanctions*

The student may be permitted to continue her/his academic program without interruption while completing required or offered discretionary sanctions which may include, but are not limited to: letters of apology, community service, educational programs or assignments, restorative justice, mediation, individual assessment, counseling, substance abuse education, intervention or treatment.

7. *Restitution*

Compensation for loss, damage, or injury. This may take the form of appropriate service or monetary or material replacement.

8. *Disciplinary suspension*

Suspension for a distinct period of time and/or the specification that a student must fulfill certain requirements before re-admission or re-instatement will be considered. While suspended, the student is not entitled to attend classes, use university facilities, participate in university activities, or be employed by the university. Special conditions may be stipulated for reinstatement at the conclusion of the period of suspension. The school will provide the names of suspended students to the university and the Colorado State Board of Pharmacy.

9. *Deferred suspension*

A suspension may be deferred under special conditions in which the student participates in a designated program as a condition to remain in school under a strict probationary status defined by the Associate Dean for Academic Affairs.

10. *Disciplinary expulsion*

Expulsion is permanent removal from the university with no opportunity to return. The student is required to permanently leave the School of Pharmacy. The school will provide the names of expelled students to the university and the Colorado State Board of Pharmacy.

11. *Revocation of admission or degree*

Admission to or a degree awarded from the university may be revoked for fraud, misrepresentation, or for other serious violations committed by a student prior to matriculation or graduation.

12. *Withholding degree*

The university may withhold awarding a degree otherwise earned until the completion of the process set forth in this Student Conduct Code, including the completion of sanctions imposed.

13. *Summary suspension*

The Dean, Associate Dean for Academic Affairs, and their designee(s) have the authority to suspend summarily, pending final disposition of the case, any student when, in the opinion of these officials, such a suspension is necessary to:

- a. Maintain order on the campus;
- b. Preserve the orderly functioning of the university;
- c. Stop interference in any manner with the public or private rights of others on university premises;
- d. Stop actions or potential actions that threaten the health or safety of any person; or
- e. Stop actions or potential actions that destroy or damage property of the university, its students, faculty, staff, or guests.

Summary suspension will exclude the student from campus and off-campus program activities. Summary suspension begins immediately upon notice from the appropriate school official. A conference with the Associate Dean for Academic Affairs is then scheduled as soon as possible (usually within 10 calendar days) to determine how the case will continue and to begin the conduct process. In extreme matters, a

summary suspension may be put in place until a student receives a final disposition in a court process after having been charged with a serious crime.

## Student Ethics and Conduct Code Incident Report Form

Please use this site ([https://ucdenverdata.formstack.com/forms/ethics\\_and\\_conduct\\_report\\_form/](https://ucdenverdata.formstack.com/forms/ethics_and_conduct_report_form/)) to report an incident.

### MISSION

The purpose of the curriculum is to prepare graduates to be competent, ethical, contemporary and compassionate entry-level pharmacists. They will be committed to active involvement in the advancement of the pharmacy profession and dedicated to fulfilling the public trust by assuming responsibility for optimizing patient care through provision of appropriate drug therapy and by assuring the safe, effective and efficient use of drug products and drug delivery systems.

### THEMES OF STRENGTH

- **Patient Care:** The graduate will provide patient care in cooperation with patients and other members of an inter-professional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences that may impact therapeutic outcomes. Our graduates are experts in the pharmacists' patient care process.
- **Systems Management:** The graduate will manage and use resources of the health care system, in cooperation with patients, other health care providers, and support personnel, to promote health; to provide, assess, and manage safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes. The graduate must demonstrate expertise in informatics.
- **Public Health:** The graduate will promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an inter-professional team of health care professionals.
- **Professionalism and Communication Skills:** The graduate will exhibit effective communication skills, professional behaviors and attitudes that promote successful patient and professional interactions. They must bring to the practice of pharmacy the necessary values, attitudes, and behaviors to discern and manage ethical and evolving issues of pharmacy practice.
- **Scholarship:** The graduate will exhibit intellectual curiosity by approaching problems from a scholarly perspective, applying scientific principles and methods to identify and solve problems.

### ABILITY-BASED OUTCOMES:

The graduates of the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences will be able to improve health by:

## 1. Collect appropriate patient data to make an assessment

- Identify and collect information from health records that will influence optimal pharmacotherapy
- Obtain a history from patient or caretaker (e.g. chief complaint, medical medication management, financial, social, cultural, review of systems)
- Conduct appropriate physical assessment relevant to pharmacy practice

## 2. Conduct a patient-centered assessment

- Recognize common symptoms/complaints
- Identify drug-related problems
- Determine disease severity, chronic disease control and therapeutic goals
- Prioritize identified problems in collaboration with the patient and other health care providers

## 3. Design, implement, evaluate, and adjust a patient-centered pharmacy care plan

- Critically evaluate treatment options using sound scientific principles (including basic and clinical sciences) and evidence
- Consider patient specific characteristics including health literacy, cultural diversity, and behavioral psychosocial issues
- Select appropriate drug therapy (e.g. drug, dose, route, frequency)
- Select appropriate non-drug therapy
- Develop a monitoring plan
- Conduct patient education including verification of patient understanding of treatment plan
- Implement interventions to improve adherence
- Refer to other providers as appropriate

## 4. Process medication related orders

- Perform calculations required to compound, dispense and administer medications
- Dispense medications in a manner that promotes safe, accurate and effective use
- Prepare and compound extemporaneous preparations
- Carry out duties in accordance with legal, ethical, social, economic and professional guidelines

## 5. Provide population-centered care

- Analyze epidemiologic, pharmacoeconomic, and pharmacogenomic data, medication use review, and risk management strategies
- Develop and implement population-specific, evidence-based disease management programs and protocols

## 6. Manage aspects of pharmacy operations using appropriate data and procedures

- Comply with laws and regulations
- Apply ethical and professional principles
- Assess and improve medication distribution and control systems
- Employ effective personnel management principles
- Use sound principles of fiscal resource management

## 7. Manage a successful patient-centered practice

- Develop a plan for the establishment, marketing and compensation for medication therapy management and patient care services
- Use sound principles that support efficient and cost-effective utilization of resources (e.g. human, physical, medical, informational and technological)

## 8. Retrieve, evaluate and utilize basic science, professional and lay information in a critical and scientific manner that enhances the practice of pharmacy

- Identify and select appropriate drug information resources
- Demonstrate expertise in informatics by acquiring, storing, analyzing, using, and disseminating medication-related data and knowledge in a manner that optimizes patient care and health outcomes
- Evaluate the safety, efficacy, and pharmacoeconomic implications of medications, medical devices and patient care services

## 9. Manage medication use systems to optimize patient and population outcomes

- Predict, identify, evaluate and report adverse drug reactions and medication errors and recommend actions to minimize drug misadventure
- Participate in the process of conducting medication use evaluations
- Describe, evaluate and navigate a health system's formulary process
- Compile and evaluate literature necessary to review a class of medications and make formulary recommendations that influence pharmacy benefits
- Participate in the development of policies related to medication use and health systems

## 10. Develop and participate in health promotion, disease preventions and public health policy

- Participate in immunization provision programs
- Engage in public education programs (e.g. health fairs, screenings, brown bags, disease prevention)
- Collaborate with other organizations (e.g. governmental organizations, health organizations, business groups) to develop and promote public health policy

## 11. Exhibit the highest standards of professional and ethical behavior in pharmacy practice (e.g. honesty, integrity, tolerance, confidentiality, care, and compassion, respect for others, responsibility)

- Develop and maintain professional relationships with patients
- Develop and maintain professional relationships with other health care providers
- Make and defend rational, ethical decisions within the content of professional and personal values
- Respect and protect patient privacy

## 12. Maintain professional competency and professional stewardship

- Identify and analyze emerging issues (including basic and clinical scientific advances), products, and services to improve pharmacy practice and public health
- Self-assess learning needs and design, implement and evaluate strategies to promote intellectual growth and continued professional competence
- Advance oneself and the profession through leadership, service activities and participation in professional organizations

### 13. Apply basic and clinical scientific principles and methods to identify and solve problems

- Formulate a relevant and significant question or hypothesis
- Develop a strategy or method to answer the question or hypothesis
- Analyze available information to answer the question or reformulate hypothesis
- Provide evidence based solutions that most effectively answers the question or hypothesis

### 14. Communicate effectively using multiple strategies to improve health outcomes

- Communicate and collaborate with patients, caregivers and health care professionals to engender an intraprofessional and interprofessional approach to patient-centered and population-centered care
- Provide accurate and succinct verbal or written information that is appropriate for the target audience (e.g. patient, caregiver or other health care professional)
- Identify factors (e.g. low health literacy, cultural) that influence effective communication and modify communication strategies to optimize health care interactions
- Display verbal and non-verbal mannerisms that promote empathetic, respectful and compassionate communication
- Appropriately document patient-specific information in health records
- Explain health-system related issues (e.g. pharmacy benefits, formularies) to relevant stakeholders (e.g. patients, caregivers, and health care providers)

## Courses

#### PHRD 5001 - Introduction to Pharmacy (0.6 Credits)

Course introduces students to how the pharmaceutical, chemical and biological sciences relate to each other and the practice of Pharmacy. Experience gained from this course allows students to comprehend how fundamental sciences integrate to form a foundation for pharmacy practice. Restrictions: Department Consent Required  
Grading Basis: Pass/Fail Only  
Typically Offered: Fall.

#### PHRD 5010 - IPPE Community (2 Credits)

This is the first in a series of experiential-based courses, providing 80 hours of community pharmacy practice experience. Students will participate in all facets of community pharmacy practice, with a particular focus on the development of communication and professionalism skills.

Grading Basis: Letter Grade with IP  
Typically Offered: Fall, Spring.

#### PHRD 5015 - Mechanisms of Disease (3 Credits)

Introduces students to concepts in cell biology and pathophysiology that form a foundation for understanding mechanisms by which drugs act or intervene with disease processes. Knowledge gained from course sets a foundation for understanding disease development and progression in subsequent courses. Restrictions: Department Consent required  
Grading Basis: Letter Grade  
Typically Offered: Fall.

#### PHRD 5025 - Applied Biological Chemistry (3 Credits)

Course builds upon student knowledge of biochemistry to explore applications of biochemistry to diseases, drug actions, and drug development. Knowledge gained from this course is used as a foundation for understanding the rationale for the therapeutic uses of drugs.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

#### PHRD 5045 - Pharmacy Law and Regulatory Standards (3 Credits)

Course introduces students to pharmacy laws and regulations. Students are able to carry out their intern duties in accordance with professional guidelines and regulatory standards. The course also explores how to apply ethical and professional principles in various healthcare settings. Restrictions: Department Consent required.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

#### PHRD 5055 - Pharmacy Practice Fundamentals & Drug Information (4 Credits)

Course provides students with tactics necessary to perform dispensing duties in most pharmacy settings. Fundamentals of the practice of drug information are introduced. Pharmacy practice and drug information fundamentals are presented with the context of the history of pharmacy and contemporary pharmacy practice. Restrictions: Department Consent required.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

#### PHRD 5065 - Patient-Centered Communication 1 (3 Credits)

During this two-course learning series, students develop skills to communicate effectively with patients, caregivers and healthcare providers to facilitate optimal patient outcomes. These courses cover all aspects of professional communication, including gathering, organizing, conveying and documenting patient-related information.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

#### PHRD 5075 - Pharmacotherapy Self-Care 1 (3 Credits)

Course prepares students to be able to 1) collect appropriate patient data to make an assessment for self-care (e.g. nonprescription products), 2) conduct a patient-centered assessment, and 3) design, implement, evaluate and adjust a patient-centered self-care plan. Restriction: Department Consent required.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

#### PHRD 5896 - Med Spanish (INTERM) (2 Credits)

Grading Basis: Pass/Fail Only

#### PHRD 5915 - Modern Drug Design & Actions (2 Credits)

This course explores the modern drug discovery and development processes and utilizes clinical examples to teach students to rationalize and predict how the chemical structure of a drug dictates its medicinal properties and routes of metabolism. Department consent required  
Grading Basis: Letter Grade  
Typically Offered: Spring.

#### PHRD 5925 - Pharmaceutics (4 Credits)

Students introduced to biophysical and chemical considerations in development of pharmaceuticals and products and compounding various dosage forms, principles of parenteral drug preparation and administrations. Knowledge gained allows students to understand formulation development and optimize dosage forms for individual patients. Department consent required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**PHRD 5935 - Pharmacology & Toxicology (2 Credits)**

Using the nervous systems as a model, the course introduces students to the mechanisms by which drugs produce therapeutic effects and side effects. The mechanisms of drug toxicity and how toxicity can be prevented and treated will be explored. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5965 - Patient-Centered Communication 2 (3 Credits)**

During this two-course active learning series, students develop skills to communicate effectively with patients, caregivers and healthcare providers to facilitate optimal patient outcomes. These courses cover all aspects of professional communication, including gathering, organizing, conveying and documenting patient-related information. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5975 - Pharmacotherapy Self-Care 2 (2 Credits)**

Course prepares students to be able to 1) collect appropriate patient data to make an assessment for self-care (e.g. nonprescription products), 2) conduct a patient-centered assessment, and 3) design, implement, evaluate and adjust a patient-centered self-care plan. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5985 - Pharmacotherapy 1 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: gastrointestinal, pulmonology, dermatology, ophthalmology, otic diseases. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6015 - Pharmacokinetics (3 Credits)**

The influence of physiological and pathophysiological factors on drug levels is considered. Knowledge gained allows students to calculate appropriate dosing of drugs in patients and anticipate how drug doses should be adjusted in disease and the presence of other drugs. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6065 - Evidence-based Medicine & Literature Evaluation (3 Credits)**

An introduction and step-wise approach to evidence-based medicine. Students understand commonly-used statistical tests and evaluate statistical results for statistical versus clinical significance. Students demonstrate by answering short drug information questions, presenting a journal club and writing a drug information paper. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6085 - Pharmacotherapy 2 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: nephrology, cardiology 1. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6095 - Pharmacotherapy 3 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: endocrinology, gynecology, urology. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6900 - Experiential IPE (1 Credit)**

This experiential-based course aligns with the CU Center for IPE. Students complete interprofessional simulation training (Clinical Transformations) at the Center for Advancement of Professional Education and practice with a clinical team during the IP Provider IPPE Program (Clinical Integrations).

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**PHRD 6910 - IPPE Health System (2 Credits)**

This experiential-based course provides 80 hours of health-system pharmacy practice, focusing on the delivery of patient care and systems used to provide care to multiple patients. Course further develops professionalism, communication, and skills needed for advanced experiential training.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**PHRD 6915 - Seminar Research 1 (1 Credit)**

Students will apply their ability to retrieve, evaluate, and utilize professional information in a critical and scientific manner. Students independently determine how to best solve a pharmacy-related question using scientific principles, and present their findings to a large audience. Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6925 - Medicinal Chemistry (2 Credits)**

This course is an application of medicinal chemistry concepts using clinically relevant case studies, designed to examine mechanism(s) of drug action and resistance, structure activity relationships, and other concepts related to the pharmacology and clinical use of modern drugs. Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6945 - Public Health & Health Outcomes 1 (3 Credits)**

Introduces students to health care delivery systems and discusses the social, political, economic factors that influence these systems. Students will link various medication use systems to their role in development and participation in health promotion, disease prevention, public health policy. Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6965 - Clinical Problem Solving Skills (2 Credits)**

This course builds upon the principles and skills from PHRD 5055/6065 and includes application inside and outside the classroom of drug information, effective search strategies and literature evaluation, critical appraisal of scientific literature, and applying evidence in clinical practice.

Grading Basis: Letter Grade

Typically Offered: Spring.



**PHRD 6985 - Pharmacotherapy 4 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: cardiology 2, infectious diseases 1. Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6995 - Pharmacotherapy 5 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: psychiatry, neurology. Restriction: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7015 - Seminar Research 2 (1 Credit)**

Students will apply their ability to retrieve, evaluate, and utilize professional information in a critical and scientific manner. Students independently determine how to best solve a pharmacy-related question using scientific principles, and present their findings to a large audience. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7025 - Pharmacogenomics (2 Credits)**

Course provides students with an understanding of how genetic factors influence drug efficacy. Knowledge gained from this course enhances students' ability to select the most effective therapeutic intervention. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7045 - Public Health & Health Outcomes 2 (3 Credits)**

Course concepts are medication safety, drug usage, pharmacoeconomics, and pharmacoepidemiology. Students analyze medication systems by using population data and risk management strategies, critically evaluate economic literature on a drug, and compare pharmacy and non-pharmacy treatments on economic and humanistic outcomes. Department consent required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7055 - Pharmacy Management (2 Credits)**

The course provides an introduction to management in community pharmacy practice, hospital pharmacy management, and other business and management skills needed to be successful in a variety of different practice settings. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7085 - Pharmacotherapy 6 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: infectious diseases 2. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7095 - Pharmacotherapy 7 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: hematology, oncology, rheumatology, transplantation. Department consent required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7801 - Principles of Clinical Pharmacology (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery & development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Prerequisite: P3 students or permission of course director.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7802 - Principles of Clinical Pharmacology 2 (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery & development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Requisite: P3 students or permission of course director.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7805 - Honors Thesis Study Course (2 Credits)**

Students in the Honors Program may use this elective course to complete specific outcomes of their Honors project over 1-2 semesters. The student/mentor must complete the Approval and Proposal forms (found on SOP website) prior to enrolling. Requirement: Department consent.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**PHRD 7808 - Introduction to the Pharmaceutical Industry (2 Credits)**

Course provides a broad background on the pharmaceutical industry. Reviews of major pharmaceutical company functions will be covered, Emphasis will be placed on clinical development and areas of opportunity for those with a pharmacy or pharmaceutical sciences background.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7810 - Applied Pharmaceutical Outcomes Research Methods (2 Credits)**

Students completing this course will be able to identify and write a clinical research question; identify variables for analyses; complete intermediate statistical analyses to answer their research question; write-up their study as a scientific manuscript; and present their research orally.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7812 - Seminar in Pharmaceutical Sciences (2 Credits)**

Provides practical experience in the evaluation and discussion of research literature. Students will prepare a seminar and participate in scientific discussions. Students who are interested in broadening knowledge in pharmaceutical science, drug delivery, and improving their speaking skills will benefit.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.



**PHRD 7815 - Physical Assessment/Examination in Pharmacy (2 Credits)**

This course is designed to provide students with functional knowledge and skills in the area of physical assessment and will aid students in enhancing the assessment of disease and drug therapy in a variety of practice settings.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7818 - Innovation and Entrepreneurship (2 Credits)**

Students will have the opportunity to gain an understanding and recognize their creative abilities, promote innovation in themselves and others, and demonstrate productive thinking. Able to recognize a gap in healthcare, create a solution, and tell story of their solution.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7830 - Infectious Diseases Elective (2 Credits)**

This course will address the pharmacology and appropriate clinical use of agents used in the treatment and management of selected infectious diseases. The course will also focus on pharmacodynamics of antimicrobial agents, antibiotic stewardship, antibiotic resistance, and statistics.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7835 - Advanced Cardiovascular Pharmacotherapy (2 Credits)**

The purpose of this course is to provide a more comprehensive and in-depth background in cardiovascular pharmacotherapy for students interested in, or planning to practice in, settings where the care of patients with cardiovascular disease is emphasized.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7836 - Ambulatory Care Elective (2 Credits)**

Students will be introduced to emerging roles for pharmacists in the primary care setting, will gain further knowledge and skills regarding chronic disease management, and will be introduced to billing, regulatory, policy, and legal considerations for this practice environment.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7840 - Caring for the Psychiatric Patient (2 Credits)**

This course builds on Pharmacotherapy 5 by addressing clinical, social, economic and ethical aspects of psychiatric care. Student teams examine psychiatric disease states from the patient's point of view, evaluate patient cases, write therapeutic plans, and role play patient education.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7842 - Medical Use of Cannabis (2 Credits)**

Course will address the pharmacology and appropriate medical use of cannabis used in the treatment and management of selected disease states. Course will also focus on the pharmacokinetics, pharmacodynamics, legal aspects, special populations and patient information (safety) of cannabis.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7844 - Special Topics in Compounding (2 Credits)**

Course will provide students with an understanding of principles and practices involved in clinical aspects of pharmacy compounding.

Students will utilize readings, case studies, class discussion, outside-class assignments, and written evaluation to learn how pharmacy compounding may solve medication-related problems. Department

Consent Required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7850 - Geriatric Pharmacy Elective (2 Credits)**

This course is intended to provide the student with an advanced understanding of pharmacotherapy in older adults as well as common medical, psychological, and social issues encountered when caring for older adults. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7854 - Database Mgmt Systems Independent Study (3 Credits)**

Designed to give students a solid foundation in practical database design and implementation. This study will help students develop database design skills that have valuable and meaningful application in clinical informatics settings.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7855 - Independent Study (1-4 Credits)**

Prerequisite: P3 status. Per Department Chair approval.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**PHRD 7856 - Independent Study (2 Credits)**

Prerequisites: P3 status. Per Curriculum Committee approval.

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring.

**PHRD 7857 - Compounding Pharmacy Elective (2 Credits)**

An elective course to offer compounding skills for pharmacy students.

Prereq: P1-P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7858 - Managed Care Elective (2 Credits)**

The goal of the Managed Care Independent study at Kaiser Permanente Colorado is to provide the student with various managed care pharmacy experiences, both didactic and experiential. Prerequisite: P3 status

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring.

**PHRD 7860 - Special Topics in Integrated Health & Medicine (2 Credits)**

This course is designed to develop a broad knowledge base in the field of Integrated Health and Medicine. This course will cover common vitamins and minerals, herbal products, and bio-identical hormones, and core domains and discussions of regulatory issues. Prerequisite: P1-P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7862 - Global Health Disparities (2 Credits)**

Key issues in the struggle of decreasing global health inequality are medication access and affordability. This course provides expertise in these areas as well as prevention, screening, and treatment of communicable and non-communicable diseases affecting patients in resource poor areas.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7865 - Film and Healthcare (2 Credits)**

This elective is designed to encourage pharmacy students to reflect upon the humanistic issues associated with health, disease and treatment through the lenses of film and literature.

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**PHRD 7870 - Pediatric Pharm Practice (2 Credits)**

This course will be offered to students interested in developing and fostering their knowledge and assessment of childhood diseases and pharmacotherapy. Clinical pharmacy specialists and staff from the Children's Hospital of Denver will teach this course. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7880 - Women's Health Elective (2 Credits)**

This course will address the clinical, social, economic, and ethical aspects of women's health care. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7885 - Acute Care Pharmacotherapy (2 Credits)**

Pharmacology and appropriate clinical use of agents used in the treatment of selected acute disorders found in hospitalized patients. The course will also focus on the comprehensive nature of these acute disorders. Recent advances in pharmacotherapy, patient-specific management strategies, and controversial issues will be included and emphasized. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7890 - Advanced Oncology Pharmacy (2 Credits)**

Students will learn pathophysiology and treatment of solid organ and hematologic malignancies, practical use of antineoplastic agents, and provision of supportive care for patients of cancer. Prerequisite: PHRD 6750.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7895 - Beginning Medical Spanish (2 Credits)**

This Beginning Medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7896 - Intermediate Med Spanish (2 Credits)**

This intermediate medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with intermediate conversational Spanish and medical vocabulary in various pharmaceutical context. Language learning is both academic and experiential. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PHRD 7905 - Advanced IPPE (6 Credits)**

Students are placed in a 6-week, full-time (40 hours per week) patient care experience in which they can begin to apply their didactic knowledge. In this advanced IPPE students demonstrate competency to meet pre-APPE core performance domains and abilities. Requirements: Department consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7965 - Health Care Informatics (2 Credits)**

Course provides introductory content about informatics topics including a working understanding of knowledge systems for students to be able to manage medication use systems to optimize patient and population outcomes. Requirements: Department consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7995 - Clinical Capstone (6 Credits)**

Course is designed to be a capstone that integrates essential core pharmacy practice topics. The philosophy of this course is to facilitate student learning, and holding students accountable for prior learning in an integrated manner using complex patient scenarios. Requirements: Department Consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 8045 - AdvPharPracExp - Medication Therapy Management (3 Credits)**

Three-week rotation; 40 hrs weekly. This experience will take place in a community pharmacy practice setting. Students will participate in medication therapy reviews, pharmacotherapy consults, anticoagulation management, and other clinical services that optimize therapeutic outcomes for individual patients. Requirement: Department consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**PHRD 8055 - AdvPharPracExp - Elective (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in various practice settings. Students may participate in various activities that focus on medication-related problems dealing with various populations, with or without direct patient contact. Requirement: Department consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PHRD 8065 - AdvPharPracExp - Ambulatory Care (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in an ambulatory care, multidisciplinary practice setting. Practice sites may include hospital-based clinics, physician group practices, and community or public health clinics that provide health care directly to patients. Requirement: Department consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PHRD 8075 - AdvPharPracExp - Community (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in a community pharmacy practice setting. Practice sites include independent, large chain or retail pharmacies that provide a variety of services, including administration of immunizations and health/wellness screenings. Requirement: Department Consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PHRD 8085 - AdvPharPracExp - Hospital/Health-System Pharmacy (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in an inpatient practice setting. Students will be exposed to adult patients with a variety of disease states, and participate in other institutional activities related to clinical pharmacy services. Requirement: Department consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

## Pharmacy Dual Degree Programs

Set yourself apart by earning a dual degree. Students in the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences entry level PharmD program are welcome to apply to also pursue a Masters of Business Administration (MBA) or a Masters of Public Health (MPH) degree in addition to their PharmD degree.

- PharmD/MBA Dual Degree (p. 439)
- PharmD/MPH Dual Degree (p. 439)

## PharmD/MBA Dual Degree

No matter what path you choose with pharmacy, a PharmD/MBA degree will help you understand the field of healthcare as it becomes more complex and focused on cost-effectiveness, finance, communication, and strategic planning. Earn your MBA through the CU Denver Business School.

A student **can apply in the second (P2) or fourth (P4) year** of pharmacy school. A student applying in the P2 year will take a one year leave of absence to complete coursework at the University of Colorado Denver Business School, and then re-enter the PharmD program as a P3 student. A student applying in the P4 year will engage in coursework for their MBA after completing their PharmD degree.

### To be considered for these programs, a student must:

1. Have a bachelor's degree (Note that CU Pharmacy students are able to obtain a bachelor's degree if they did not earn one prior to acceptance to the PharmD Program. For information regarding this program, please go to the following URL: BSMS Application (<http://www.cvent.com/events/bs-ms-application/event-summary-8a91c230664b454f5ab6e5fac2602a.aspx>))
2. Have a cumulative GPA (including required and elective coursework) of at least 3.0 in the courses of the pharmacy program at the end of the first professional year (for P2 applicant) or third professional (P3) year (for P4 applicant)
3. Be in good academic standing and have no professional or conduct violations

In the application process, a student will select a type of MBA. Please note that the MBA Health Administration (MBAH) is highly competitive and has limited student places.

### An application to the PharmD/MBA program includes:

- Submitting an email ([bschool.admissions@ucdenver.edu](mailto:bschool.admissions@ucdenver.edu)) to the CU Denver Business School indicating that you are applying to the PharmD/MBA dual degree
- Application fee
- On-line application (<https://pharmacy.cuanschutz.edu/academics/colleges/business/Documents/admissions/GraduateApplicationPacket-Domestic.pdf>) for graduate admission
- In-state tuition classification form
- Essay question responses
- Resume
- PCAT, MCAT, GRE scores (or equivalent)
- Official copies of undergraduate and professional program transcripts
- Two current letters of recommendation
- A letter from the CU Pharmacy Office of Student Services (OSS) (<http://pharmacy.cuanschutz.edu/about-us/our-people/offices/#oss>) indicating that you are in good standing (academic professional conduct)

After receiving 12 credits of PharmD coursework towards the dual degree program, a student will be required to complete 35 credits of MBA coursework. If interested, please email [David.Thompson@CUAnschutz.edu](mailto:David.Thompson@CUAnschutz.edu) ([david.thompson@cuanschutz.edu](mailto:david.thompson@cuanschutz.edu)).

## PharmD/MPH Dual Degree

The role of the pharmacist continues to expand and pharmacists are now an integral part of the healthcare team. The PharmD/MPH degree is in response to that expanding role. It is offered in partnership with the Colorado School of Public Health.

University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences entry-level PharmD students are welcome to apply to pursue a Master of Public Health (MPH) degree in addition to their PharmD degree. A student **can apply in the second (P2) or fourth (P4) year** of pharmacy school. A student applying in the P2 year will take a one year leave of absence to complete coursework at the Colorado School of Public Health, and then re-enter the PharmD program as a P3 student. A student applying in the P4 year will engage in coursework for their MPH after completing their PharmD degree.

To learn more about this dual degree, please click here (p. 123) to view the full information within the **Colorado School of Public Health** portion of the academic catalog.

A student **can apply in the second (P2) or fourth (P4) year** of pharmacy school. A student applying in the P2 year will take a one year leave of absence to complete coursework at the Colorado School of Public Health, and then re-enter the PharmD program as a P3 student. A student applying in the P4 year will engage in coursework for their MPH after completing their PharmD degree.

### To be considered for this program, a student must:

1. Have a bachelor's degree (Note that SSPPS PharmD students are able to obtain a bachelor's degree if they did not earn one

prior to acceptance to the Pharm. D. Program. For information regarding this program, please go to the following URL: BSMS Application (<http://www.cvent.com/events/bs-ms-application/event-summary-8a91c230664b454f5ab6e5fac2602a.aspx>)

2. Have a cumulative GPA (including required and elective coursework) of at least 3.0 in the courses of the pharmacy program at the end of the first professional year (for P2 applicant) or third professional (P3) year (for P4 applicant)
3. Be in good academic standing and have no professional or conduct violations at the SSPPS

In the application process, a student will select an area of focus for the MPH.

**The deadline for applications is in January**, check back here for deadline updates.

**An application to the PharmD/MPH program includes:**

- Completion of an online program application - contact admissions.CSPH@ucdenver.edu to apply
- Application fee
- A statement of interest
- Official copies of undergraduate and professional program transcripts
- PCAT, MCAT, GRE scores (or equivalent, see below)
- Curriculum vitae or resume
- Two current letters of recommendation specifically related to the student's interest and capacity for success in the PharmD/MPH program
- A letter from the CU Pharmacy Office of Student Services (OSS) (<http://pharmacy.cuanschutz.edu/about-us/our-people/offices/#oss>) indicating that the student is in good standing (academic and professional conduct)

After receiving 9 credits of PharmD coursework towards the dual degree program, a student will be required to complete 36 credits of MPH coursework. If interested, please email David.Thompson@CUAnschutz.edu ([david.thompson@cuanschutz.edu](mailto:david.thompson@cuanschutz.edu)).

## Pharmacy Fellowships

Highly specialized pharmacy research that makes a difference: Our fellowships help pharmacy professionals reach new levels of expertise in neurology, oncology, and outcomes research. By training under top experts in each field, our fellows leave our programs ready to make advances in the field.

Join us for a rare experience. Our Clinical Neurology Research Fellowship is the only fellowship in the United States that specifically focuses on research and clinical practice in the field of neurology.

Please visit the Clinical Neurology Research Fellowship website (<https://pharmacy.cuanschutz.edu/academics/fellowships/clinical-neurology-research/>) for more information.

At CU Pharmacy, we're committed to giving the next generation of oncology experts the diverse experience they need to make advances.

The Oncology Clinical Research Fellowship is designed to develop competency and expertise in clinical and translational oncology pharmacy research.

The fellowship program co-directors, Cindy O'Bryant, PharmD, BCOP, FCCP and Rajesh Agarwal, PhD, come from CU Pharmacy's Department of Clinical Pharmacy and the Department of Pharmaceutical Sciences. The training program is a collaborative effort between the departments that builds upon the oncology research strengths and expertise within the School of Pharmacy.

The fellowship program consists of two years of laboratory and clinical research. The first year of the fellowship will be a combination of laboratory experience to learn appropriate techniques, clinical rotations at the University of Colorado Cancer Center and course work. The second year will be intensely focused on research projects.

Course work will educate the fellow in all aspects of oncology research. Core didactic courses may include, but are not limited to, PK/PD, fundamentals of pharmaceutical science, statistics, epidemiology, research design and methods, and ethics.

The fellowship is individualized so that other elective courses or experiences can be incorporated to maximize exposure to relevant areas of research.

Eligible applicants have:

1. A PharmD degree
2. Residency or equivalent clinical experience
3. Interest or aptitude for a career in clinical and translational oncology research.

Offered jointly by CU Pharmacy and Kaiser Permanente, our Outcomes Research Fellowship in Ambulatory Care provides a unique training experience. The fellowship is designed to develop independent clinical scientists in a pharmacy-related outcomes and ambulatory care research.

### REQUIRED QUALIFICATIONS

- Doctor of Pharmacy degree,
- Completion of a PGY1 (PGY2 or Master's preferred), **and**
- Eligible for licensure in Colorado.

### APPLY

Interested applicants should electronically submit:

- A letter of intent (explaining why a research fellowship is desired and provide a description of research interests),
- Curriculum vitae, and
- Two letters of reference to Sheila Botts ([sheila.r.botts@kp.org](mailto:sheila.r.botts@kp.org)) and Katy Trinkley ([katy.trinkley@cuanschutz.edu](mailto:katy.trinkley@cuanschutz.edu)).

Applicants are encouraged to apply early. Applications will be reviewed on a rolling basis and offers will be extended as highly qualified applicants are identified.

Contact Sheila Botts ([sheila.r.botts@kp.org](mailto:sheila.r.botts@kp.org)) and Katy Trinkley ([katy.trinkley@cuanschutz.edu](mailto:katy.trinkley@cuanschutz.edu)), or current/past fellows with additional questions.

## Pharmacy Graduate Certificates

From palliative care to cannabis science and medicine, our school is home to certificate programs that can help you advance your career. We offer three certificate programs: Cannabis Science and Medicine,



Integrative Health and Medicine, and Palliative Care. Join our experts to grow your skills as a scientist and healthcare provider.

- Cannabis Science and Medicine (Certificate) (p. 441)
- Palliative Care (Certificate) (p. 441)

## Cannabis Science and Medicine (Certificate)

### Program Overview

The University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences is a leader in the scientific investigation, quality assurance and clinical evaluation of plant-based medicines. Our Cannabis Science and Medicine Graduate Certificate extends that expertise with a 9-credit hour graduate certificate program. The certificate provides an in-depth understanding of the pharmacology and therapeutics of cannabis. Ideal candidates for this offering include healthcare professionals who want to optimize overall clinical outcomes and scientists who want to enhance their knowledge of cannabis chemistry, analysis and actions.

The online nature of the course and self-directed learning modules will allow flexibility for learners and offer wide geographic engagement.

- Self-directed learning will be complemented by online, synchronous live, case-based discussions and/or activities guided by clinical practice experts, clinical researchers, medicinal plant chemists and pharmacologists, and legal and regulatory leaders.
- 9 credit hours of core coursework in pharmacology, therapeutics and legal & regulatory issues.
- Optional opportunity to complete an additional 2-credit hours of coursework focusing on the chemical analysis of plant-based medicines (comprised of an online 2 credit hour laboratory methods course).
- Completion of this Graduate Certificate in CSM will also enable those desiring advanced study to apply their earned credits (9 to 11 credit hours) toward a 30-credit hour Master of Science degree in Pharmaceutical Sciences with an emphasis in CSM.

Have questions about the program? Fill out our Request Information form (<https://pharmacy.cuanschutz.edu/cupharmacy/request-information/>) and one of our knowledgeable admissions counselors will contact you.

### ELIGIBILITY

The Cannabis Science and Medicine (CSM) certificate is an online, interprofessional graduate certificate program educating healthcare professionals on the scientific use of cannabis and cannabis derived products for therapeutic options. The certificate is open to applicants who:

- Have completed a B.S. or B.A. (or higher) in a biological, chemical, medical science or allied health program; OR
- Are enrolled and in good standing in an accredited health sciences professional school (MD, DO, PA, PharmD, DMD/DDS, RN, BSN, APRN, or other as appropriate).
  - Completed at least one year within their program's curriculum and are in good standing with a cumulative professional grade point average of at least 2.0.
  - Be in good standing with any internship licensing agency.

Visit the Cannabis Science and Medicine Admission Page (<https://pharmacy.cuanschutz.edu/academics/online-programs/cannabis-science-and-medicine/#certificate>) to learn how to apply.

### ACADEMIC REQUIREMENTS

The Graduate Certificate in Cannabis Science and Medicine (CSM) is a 9-11 credit hour, online academic-based graduate program. This program is ideal for health professionals and researchers interested in cannabis science, evaluation of clinical literature and legal and regulatory issues.

The online nature of the course and self-directed learning modules will allow flexibility for learners and offer wide geographic engagement.

- Self-directed learning will be complemented by online, synchronous live, case-based discussions and/or activities guided by clinical practice experts, clinical researchers, medicinal plant chemists and pharmacologists, and legal and regulatory leaders.
- 9 credit hours of core coursework in pharmacology, therapeutics and legal & regulatory issues.
- Optional opportunity to complete an additional 2-credit hours of coursework focusing on the chemical analysis of plant-based medicines (comprised of an online 2 credit hour laboratory methods course).
- Completion of this Graduate Certificate in CSM will also enable those desiring advanced study to apply their earned credits (9 to 11 credit hours) toward a 30-credit hour Master of Science degree in Pharmaceutical Sciences with an emphasis in CSM.

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
PCSM 6720	Cannabis Therapeutics Pain/Oncology	2
PCSM 6710	Cannabis Therapeutics Neurology/Mental Health	2
<b>Hours</b>		<b>4</b>
<b>Total Hours</b>		<b>4</b>
<b>Second Year</b>		
<b>Spring</b>		
PCSM 6730	Legal & Regulatory Issues in Cannabis Medicine	2
PCSM 7700	Cannabis Pharmacology & Physiology	3
<b>Hours</b>		<b>5</b>
<b>Total Hours</b>		<b>5</b>

## Palliative Care (Certificate)

The Palliative Care program is a collaborative, interprofessional master's degree and certificate program, pooling expert faculty and resources from CU's School of Medicine, College of Nursing, Skaggs School of Pharmacy, and the Graduate School.

To learn more about the interprofessional graduate **Certificate in Palliative Care**, please click here (p. 186) to view the information within the Graduate School portion of the academic catalog.



## Pharmacy Master of Science (MS) Programs

Looking to learn from top scientists and pharmacists while advancing your career? Our Master of Science degree options can help set you apart. We offer pathways in pharmaceutical sciences, clinical pharmacy and palliative care. Each program is designed for a distinct population of students interested in expanding research or clinical practice in the field of pharmacy.

The following Master of Science programs are offered through Skaggs School of Pharmacy:

- Clinical Pharmacy (MS) (p. 442)
- Palliative Care (MS) (p. 442)
- Pharmaceutical Sciences (MS) (p. 442)

### Clinical Pharmacy (MS)

The Master of Science in Clinical Pharmacy program is designed for pharmacists (in the US and abroad) who have earned a BS, an MS, or a PharmD and are seeking to update their professional knowledge and skills. The program enables graduates to effectively provide patient-centered pharmacy care and expand their careers. The Master of Science in Clinical Pharmacy program is a flexible 33 credit hour program that can be completed remotely from your home anywhere in the world.

To review the full information for the **Master of Science in Clinical Pharmacy**, please click here (p. 414) for the main page within Skaggs School of Pharmacy and Pharmaceutical Science's Online Programs portion of the academic catalog.

### Palliative Care (MS)

Come grow your skills as a compassionate health leader who makes a difference in the lives of patients. The Palliative Care Program is a collaborative, interprofessional degree that pools expert faculty from CU's School of Medicine, College of Nursing, Skaggs School of Pharmacy, and Graduate School.

To learn more about the interprofessional **Master of Science in Palliative Care**, please click here (p. 207) to view the information within the Graduate School portion of the academic catalog.

### Pharmaceutical Sciences (MS)

The multidisciplinary field of pharmaceutical sciences has seen rapid advances that are critical to the discovery and development of drugs for chronic diseases such as cancer and diabetes, and emerging threats such as new pathogens and drug resistance. By training with our experts, you'll be on the best track to keep up with the constantly evolving field.

The Master of Science Degree in Pharmaceutical Sciences has five different tracks to choose from. A minimum of 30 credit hours is required. A short description of each track is listed below.

#### CANNABIS SCIENCE and MEDICINE TRACK (CSM)

##### Prerequisites

B.S. or B.A. in a biological, chemical, or health/medical science

Be a physician, nurse, pharmacist, physician assistant, or in a public health capacity

Or

Be a member of other allied health professions (the program director will individually counsel prospective students on any recommended prerequisite coursework)

Self-directed learning will be complemented by online, synchronous live, case-based discussions and/or activities guided by clinical practice experts, clinical researchers, medicinal plant chemists and pharmacologists, and legal and regulatory leaders. The only on-campus course is a 1 credit hour laboratory workshop on cannabis extraction and analytical methods that accompanies the 2 credit hour online course. Students unable to travel to Colorado for the 1 credit hour laboratory component can select an additional elective course.

#### CLINICAL PHARMACOKINETICS and PHARMACODYNAMICS TRACK (CPK)

An understanding of PK and PD is thus critical to every stage of drug development, from pre-clinical research through human clinical trials. Students trained in this track employ equations and models to describe drug concentrations in plasma, blood and other biological samples. The advent of new biotechnology products, combination drug products, drug delivery platforms, and nanotechnology formulations place individuals with PK-PD expertise in high demand for pharmaceutical and medical companies.

#### DRUG DISCOVERY TRACK (DGD)

This track offers you an opportunity to gain insight and experience in the drug discovery process. This includes computational design of molecules, high throughput/high content screening, structure-activity relationships, the selection of appropriate biomarkers for drug action, targeting drugs for personalized therapies, and the application of bioinformatics in the overall drug discovery process. Students trained in these approaches are well-positioned for jobs in the pharmaceutical industry, academia, and governmental regulatory bodies.

#### MOLECULAR and SYSTEMS TOXICOLOGY TRACK (MST)

This track affords you the opportunity to learn about systems toxicology and receive the training necessary to succeed in a changing research environment that is rapidly becoming focused on big data. Students graduating from this track will be sought after by employers in industry, biotechnology and government.

#### PHARMACEUTICAL BIOTECHNOLOGY and DRUG DELIVERY TRACK (PBT)

This track will provide you with the fundamental knowledge required for the synthesis, characterization, formulation, stabilization and delivery of these drugs. By possessing a sound understanding of how to successfully develop and deliver a biotechnology drug, students graduating from this track will be recruited by the pharmaceutical industry or new start-up biotechnology companies.

Applications for all master's and doctoral programs are submitted electronically through the Graduate School of the University of Colorado Denver. After signing up for an account, select 'Master's' under the 'Academic Interests' menu and scroll down to 'Skaggs School of Pharmacy and Pharmaceutical Sciences' and select 'MS in Pharmaceutical Sciences.'

Application requirements are:

- a completed Graduate School application
- a baccalaureate degree (or equivalent) in biology, chemistry, or a related field from an accredited college or university with a minimum GPA of 3.0

- a 500- to 1,000-word written statement expressing interest or demonstrated experience, if applicable, in the field of pharmaceutical sciences and indication of the applicant's intended specialty track (i.e., cannabis science & medicine, clinical pharmacokinetics & pharmacodynamics, drug discovery, molecular & systems toxicology, or pharmaceutical biotechnology & drug delivery)
- three (3) references from persons familiar with the applicant's prior academic performance, potential, character, and suitability for graduate study (using a standardized template provided to prospective students)
- Additionally:
- the GRE (Graduate Record Examination) is **not** required
- the TOEFL or IELTS is required of applicants for whom English is not their first language
- **Applications will not be reviewed until all required materials have been received. The application deadline for Fall 2021 admission is March 21, 2021.**

The Master of Science Degree in Pharmaceutical Sciences has five different tracks from which to choose. A minimum of 30 credit hours is required.

## CANNABIS SCIENCE & MEDICINE TRACK

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7400	Ethical Issues in Toxicology & Pharmaceutical Sciences	1
PHSC 7565	Applied Statistics for Pharm Science and Toxicology	2
PHSC 7700	Cannabis Pharmacology & Physiology	3
<b>Hours</b>		<b>9</b>
<b>Spring</b>		
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 6720	Cannabis Therapeutics: Pain, Oncology	2
PHSC 7710	Chemical Analysis of Cannabis	2
PHSC 7711	Chemical Analysis of Cannabis Laboratory	1
PHSC 7705	Scientific Writing in Cannabis Science & Medicine	1
<b>Hours</b>		<b>9</b>
<b>Year 2</b>		
<b>Fall</b>		
PHSC 6710	Cannabis Therapeutics Neurology/Mental Health	2
PHSC 7720	Seminar in Cannabis Science & Medicine	1
Students must complete at least 4 credit hours of elective courses across the fall and spring semesters. Suggested fall elective courses are listed below.		
TXCL 7322	Molecular and Target Organ Toxicology	3
PHSC 7330	Development of Drugs and Biologics	3
PHSC 7025	Pharmacogenomics	2
BIOS 6648	Design and Conduct of Clinical Research	3
BSBT 6802	Reg Env of Life Science Innovation - Drug Discovery	1.5

TXCL 7353	Immunology: Immunotoxicology and Immunopharmacology	2
PMHW 6621	Mental Health and Wellbeing Promotion	3
<b>Hours</b>		<b>20.5</b>
<b>Spring</b>		
PHSC 6990	Capstone Project in Pharmaceutical Sciences	3
Students may choose a year-long research thesis elective PHSC 6950/PHSC 6951 (6 credits), which meets the Capstone Project requirement.		
PHSC 6730	Legal & Regulatory Issues in Cannabis Medicine	2
PHSC 7720	Seminar in Cannabis Science & Medicine	1
Students must complete at least 4 credit hours of elective courses across the fall and spring semesters. Suggested spring elective courses are listed below.		
TXCL 7323	Environmental and Target Organ Toxicology	2
PHSC 7345	Nanotechnology & Drug Delivery	2
PHSC 7660	Liposome-based Drug Delivery	2
CBHS 6610	Social and Behavioral Factors and Health	3
HSMP 6605	Health Policy	3
PMHW 6601	Mental Health	3
PMHW 6620	Mental Health Systems and Policy	3
<b>Hours</b>		<b>24</b>
<b>Total Hours</b>		<b>62.5</b>

## CLINICAL PHARMACOKINETICS & PHARMACODYNAMICS TRACK

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7400	Ethical Issues in Toxicology & Pharmaceutical Sciences	1
PHSC 7565	Applied Statistics for Pharm Science and Toxicology	2
PHSC 6015	Pharmacokinetics	3
<b>Hours</b>		<b>9</b>
<b>Spring</b>		
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7665	Pharmacokinetic Principles & Applications	3
PHSC 7326	Clinical Pharmacokinetics & Pharmacodynamics Journal Club	1
<b>Hours</b>		<b>7</b>
<b>Year 2</b>		
<b>Fall</b>		
PHSC 7330	Development of Drugs and Biologics	3
PHSC 7667	Population Pharmacokinetic Modeling	3
PHSC 7326	Clinical Pharmacokinetics & Pharmacodynamics Journal Club	1
Students must complete at least 4 credit hours of elective courses across the fall and spring semesters. Suggested fall elective courses are listed below.		
PHSC 7025	Pharmacogenomics	2

BIOS 6648	Design and Conduct of Clinical Research	3
BSBT 6802	Reg Env of Life Science Innovation - Drug Discovery	1.5

**Hours 13.5**

### Spring

PHSC 6990	Capstone Project in Pharmaceutical Sciences	3
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Students may choose a year-long research thesis elective PHSC 6950/PHSC 6951 (6 credits), which meets the Capstone Project requirement.

Students must complete at least 4 credit hours of elective courses across the fall and spring semesters. Suggested spring elective courses are listed below.

PHSC 7345	Nanotechnology & Drug Delivery	2
TXCL 7323	Environmental and Target Organ Toxicology	2
EPID 6630	Epidemiology	3

**Hours 10**

**Total Hours 39.5**

## DRUG DISCOVERY TRACK

Course	Title	Hours
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### Year 1

#### Fall

PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7400	Ethical Issues in Toxicology & Pharmaceutical Sciences	1
PHSC 7565	Applied Statistics for Pharm Science and Toxicology	2
PHSC 7568	Seminar in the Pharmaceutical Sciences	2

**Hours 8**

### Spring

PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 5915	Modern Drug Design & Drug Action	2
PHSC 6925	Medicinal Chemistry	2
PHSC 7320	Physical Pharmacy & Pharmaceutical Sciences	3

**Hours 10**

### Year 2

#### Fall

PHSC 7328	Computational Design in Drug Discovery	3
PHSC 7568	Seminar in the Pharmaceutical Sciences	2

Students must complete at least 6 credit hours of elective courses across the fall and spring semesters. Suggested fall elective courses are listed below.

PHSC 7330	Development of Drugs and Biologics	3
TXCL 7750	Proteomics & Metabolomics for Biomarker Discovery	3
PHSC 7025	Pharmacogenomics	2

**Hours 13**

### Spring

PHSC 6990	Capstone Project in Pharmaceutical Sciences	3
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Students may choose a year-long research thesis elective PHSC 6950/PHSC 6951 (6 credits), which meets the Capstone Project requirement.

Students must complete at least 6 credit hours of elective courses across the fall and spring semesters. Suggested spring elective courses are listed below.

PHSC 7345	Nanotechnology & Drug Delivery	2
TXCL 7575	Drug Development for the Toxicologist	2

**Hours 7**

**Total Hours 38**

## MOLECULAR & SYSTEMS TOXICOLOGY TRACK

Course	Title	Hours
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### Year 1

#### Fall

TXCL 7310	Fundamentals of Pharmaceutical Sciences	3
TXCL 7400	Ethical Issues in Toxicology and Pharmaceutical Sciences	1
TXCL 7565	Applied Statistics for Pharm Science and Toxicology	2
TXCL 7322	Molecular and Target Organ Toxicology	3

**Hours 9**

### Spring

TXCL 7310	Fundamentals of Pharmaceutical Sciences	3
TXCL 7323	Environmental and Target Organ Toxicology	2
TXCL 7321	Careers in Toxicology	1
TXCL 7325	Current Topics in Toxicology Research	1

**Hours 7**

### Year 2

#### Fall

TXCL 7330	Development of Drugs and Biologics	3
TXCL 7325	Current Topics in Toxicology Research	1

Students must complete at least 7 credit hours of elective courses across the fall and spring semesters. Suggested fall elective courses are listed below.

TXCL 7750	Proteomics & Metabolomics for Biomarker Discovery	3
PHSC 7025	Pharmacogenomics	2

**Hours 9**

### Spring

PHSC 6990	Capstone Project in Pharmaceutical Sciences	3
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Students may choose a year-long research thesis elective PHSC 6950/PHSC 6951 (6 credits), which meets the Capstone Project requirement.

Students must complete at least 7 credit hours of elective courses across the fall and spring semesters. Suggested spring elective courses are listed below.

TXCL 7564	Environmental Risk Assessment and Applied Toxicology	2
TXCL 7575	Drug Development for the Toxicologist	2
PHSC 7345	Nanotechnology & Drug Delivery	2

**Hours 9**

**Total Hours 34**

## PHARMACEUTICAL BIOTECHNOLOGY & DRUG DELIVERY TRACK

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7400	Ethical Issues in Toxicology & Pharmaceutical Sciences	1
PHSC 7565	Applied Statistics for Pharm Science and Toxicology	2
PHSC 7653	Protein Formulation	2
<b>Hours</b>		<b>8</b>
<b>Spring</b>		
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7345	Nanotechnology & Drug Delivery	2
PHSC 7568	Seminar in the Pharmaceutical Sciences	2
Choose either PHSC 7608 or PHSC 7609		
PHSC 7608	Molecular Interactions	3
PHSC 7609	Biophysics & Spectroscopy	3
<b>Hours</b>		<b>13</b>
<b>Year 2</b>		
<b>Fall</b>		
PHSC 7330	Development of Drugs and Biologics	3
PHSC 7568	Seminar in the Pharmaceutical Sciences	2
Students must complete at least 6 credit hours of elective courses across the fall and spring semesters. Suggested fall elective courses are listed below.		
STBB 7631	Molecular Structure A	1.5
STBB 7633	Molecular Structure C	1.5
TXCL 7353	Immunology: Immunotoxicology and Immunopharmacology	2
<b>Hours</b>		<b>10</b>
<b>Spring</b>		
PHSC 6990	Capstone Project in Pharmaceutical Sciences	3
Students may choose a year-long research thesis elective PHSC 6950/PHSC 6951 (6 credits), which meets the Capstone Project requirement.		
Students must complete at least 6 credit hours of elective courses across the fall and spring semesters. Suggested spring elective courses are listed below.		
PHSC 7345	Nanotechnology & Drug Delivery	2
PHSC 7660	Liposome-based Drug Delivery	2
<b>Hours</b>		<b>7</b>
<b>Total Hours</b>		<b>38</b>

## Pharmacy Residencies

We offer a community-based post-graduate year 1 (PGY1) program, and six different year 2 (PGY2) residency programs. Our residencies are accredited by the American Society of Health-Systems Pharmacists (ASHP). Residency programs build on Doctor of Pharmacy education, with the PGY2 programs building on PGY1 training, to contribute to the clinical development of our residents.

Please visit the Skaggs School of Pharmacy Residencies website (<https://pharmacy.cuanschutz.edu/academics/residencies/>) for more information.

## Pharmacy Undergraduate Program

The University of Colorado Anschutz Medical Campus Research Program in Environmental Health Sciences is a paid year-long research and mentorship opportunity specifically for junior or senior level undergraduate science majors from an underrepresented minority population, with disabilities or disadvantaged backgrounds. This program is funded by NIEHS Grant R25 ES025476.

The following selection criteria will be used to select the diversity students who will become trainees for our program:

(a) Individuals who are underrepresented in health-related sciences.

The following racial and ethnic groups are underrepresented in biomedical research and will be candidates for our program:

African-Americans, Hispanic Americans, Native Americans, Alaska Natives, Hawaiian Natives, and U.S. Pacific Islands Natives.

Individuals with disabilities including a physical or mental impairments that substantially limit one or more major life activities, and/or

Individuals from disadvantaged backgrounds who come from a family with an annual income that is below established low-income thresholds and/or from a social, cultural, or educational environment have demonstrably and recently directly inhibited the individual from obtaining the knowledge, skills, and abilities necessary to develop and participate in a research career.

(b) Individuals who are currently undergraduate science majors in their Junior or Senior year at the DTC or other local undergraduate institutions. There will be no preference on prior research experience, rather, we will base selection upon their interest in environmental health sciences.

(c) Individuals who have an exceptional academic record and potential as evidenced by:

(i) High School and College GPA  $\geq 3.0$ ,

(ii) SAT  $\geq 30$ ,

(iii) Stellar non-academic achievements records, and

(iv) Additional criteria - We recognize that some attractive candidates might not exactly meet all of the aforementioned substantial credentials. Therefore, each applicant will be evaluated on a case-by-case basis by the selection committee with a consultation. For example, some underrepresented and diverse individuals may be the first in their family to pursue this type of higher education and where appropriate that information will be considered as part of the application. Regardless, of this latter consideration, we will only enroll individuals who will be competitive for acceptance into a high-quality EHS graduate programs or professional schools and have a clear interest and aptitude for conducting research in the future.

(d) Individuals who have a desire to pursue a career in environmental health sciences research as evidenced by their application, the assessment of their teachers and advisors and/or any prior research experience.

(e) Individuals who are United States Citizens, non-citizen nationals of the United States or individuals who have been lawfully admitted for permanent residence (i.e. in possession of a currently valid Alien Registration Card I-55 or some other legal verification of such status).

## School of Pharmacy PhD Programs

Breakthrough research. Groundbreaking discoveries. They happen every day at CU Pharmacy. By training with world-class researchers, you'll be positioned to enter highly specialized fields and make discoveries of your own. Our graduates have gone on to work in industry jobs, at government agencies and for other top universities. Come join us and continue to advance our field.

We offer PhD programs specializing in pharmaceutical sciences, clinical translational science, pharmaceutical outcomes research and molecular toxicology.

The following PhD programs are offered through Skaggs School of Pharmacy:

- Pharmaceutical Outcomes Research (PhD) (p. 446)
- Pharmaceutical Sciences (PhD) (p. 449)
- Toxicology (PhD) (p. 450)

## Pharmaceutical Outcomes Research (PhD)

Who decides if a drug is worth producing? Which drugs should insurance companies cover? How do we determine who gets access to lifesaving therapies? Earn your PhD in Pharmaceutical Outcomes Research and join us as we lead the way in evaluating health care interventions and their economic, clinical, and humanistic outcomes.

The traditional requirements for admission to the graduate program in pharmaceutical sciences include:

- BA or BS from an accredited institution
- Academic record
  - Satisfying the minimum admission requirements established by the CU Graduate School
  - Normally admission dependent on GPA of 3.0 or better
  - GPA <3.0 may be considered individually on a provisional basis

If you do not have a degree from a U.S. or Canadian institution, the International Affairs Office will evaluate the transcripts to determine G.P.A. equivalency. A transcript evaluation from an agency such as World Education Services is not required. If an applicant would like to include a previously completed evaluation with their application as a courtesy, they are welcome to do so.

**The admission deadline for completed applications is December 1.**

### Application Information

Given that admission to the program is very competitive, it is impossible to evaluate your qualifications for admission (test scores, grades) until the selection committee assesses the entire applicant pool. If you are selected for an interview, we do our best to pay your travel expenses to and from campus. The initial process involves submitting an online application to graduate school and can be initiated by following the link on the main page.

We do not have the resources to cover international travel expenses for applicants who live outside North America (regardless of nationality).

## Curriculum Requirements

Code	Title	Hours
<b>Required Courses</b>		
<i>Required Core Course Credits: 36</i>		
BIOS 6611	Biostatistical Methods I	3
BIOS 6612	Biostatistical Methods II	3
EPID 6630	Epidemiology	3
EPID 6626	Research Methods in Epidemiology	3
HSMP 6601	Introduction to HSMP	3
HSMP 6609	Cost Benefit and Effectiveness in Health	2
HSMP 7609	Methods in Health Services Research II	3
or EPID 6631	Analytical Epidemiology	
PHOR 7611	Applied Cost-Effectiveness Modeling	4
PHOR 7613	Pharmaceutical Economics	3
PHOR 7615	Pharmacoepidemiology	2-4
CLSC 7150	Ethics and Responsible Conduct of Research	1
PHOR 7570	Special Topics in Outcomes Research	1
PHOR 8990	Doctoral Thesis	1-10
<b>Total Hours</b>		<b>32-43</b>

Code	Title	Hours
<b>Approved Elective Courses</b>		
BIOS 6603	Statistical Computing - SAS	1
BIOS 6643	Analysis of Longitudinal Data	3
BIOS 6646	Survival Analysis	3
BIOS 6648	Design and Conduct of Clinical Research	3
BIOS 6649	Clinical Trials: Statistical Design and Monitoring	3
BIOS 6680	Data Management Using SAS	3
BIOS 7712	Statistical Methods for Correlated Data	1
BIOS 7713	Statistical Methods for Missing Data	1-2
CBHS 6620	Survey Research	3
ECON 5813	Econometrics I	3
ECON 5823	Econometrics II	3
HSMP 6604	Health Care Economics	3
EPID 6631	Analytical Epidemiology	3
EPID 6633	Clinical Preventive Services: Evidence-Based Practice	1
EPID 6646	Introduction to Systematic Reviews	1
EPID 6635	Infectious Disease Epidemiology	2
EPID 6636	Chronic Disease Epidemiology	3
EPID 6638	Global Cardiovascular Epidemiology	2
EPID 7605	Research Methods with Secondary Data Sources	3
HSMP 7607	Methods in Health Services Research I	3



## Course Descriptions

### BIOS 6603 - Statistical Computing - SAS (1 Credit)

This course will emphasize statistical analysis and data interpretation through use of the SAS statistical computing package. Instruction will be provided through laboratory exercises and interactive demonstrations

Prereq/Coreq: BIOS 6601 Restriction: Credit may be counted toward a CSPH degree for only one of BIOS 6603, 6604 or 6605

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

### BIOS 6611 - Biostatistical Methods I (3 Credits)

This first course in applied statistics covers basic descriptive methods and probability; parametric and nonparametric inference for the one- and two-sample location problem; ANOVA, ANCOVA, and multiple linear regression. Matrix notation, R, and SAS are used. Prerequisite: differential calculus or permission of instructor

Grading Basis: Letter Grade

A-PUBH BIOS

Typically Offered: Fall.

### BIOS 6612 - Biostatistical Methods II (3 Credits)

This is a continuation of BIOS 6611 covering univariate linear modeling and emphasizing multiple regression and analysis of variance. Logistic regression and methods for correlated data are also covered. Matrix algebra and the statistical package SAS will be used. Prereq: BIOS 6611.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### EPID 6630 - Epidemiology (3 Credits)

This course provides an introduction to descriptive and analytic methods in epidemiology and their application to research, preventive medicine and public health practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

### BIOS 6643 - Analysis of Longitudinal Data (3 Credits)

Theory and application of models appropriate for clustered and longitudinal data are studied. Models for different types of outcome variables (e.g., normal, Poisson, binomial) are covered, with an emphasis on linear mixed models for normal outcomes. Prerequisites: BIOS 6632 and BIOS 6612 or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

### BIOS 6646 - Survival Analysis (3 Credits)

This course covers the analysis of time-to-event data with applications to biology, medicine, and public health. Nonparametric methods for group comparisons and semi-parametric regression models will be emphasized. Parametric methods and distribution theory for survival analysis will also be included. Prereq: BIOS 6611 & BIOS 6631 or instructor permission

Coreq: BIOS 6612 & BIOS 6632 or instructor permission.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### BIOS 6648 - Design and Conduct of Clinical Research (3 Credits)

Design and conduct of clinical research studies. Intended for non-biostatistics students. Topics include: specifying the research question, study endpoints, study populations, study interventions, sample size evaluation, and choice of comparison groups. Common study designs and methods for study conduct are described. Prerequisite: BIOS 6601 or BIOS 6611 or consent of instructor. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

### BIOS 6649 - Clinical Trials: Statistical Design and Monitoring (3 Credits)

Statistical and scientific design of clinical trials. Intended for biostatistics graduate students. Topics include: scientific and statistical aspects of the research question, endpoints, treatments, sample size evaluation. A wide range of trial designs including group sequential and adaptive trial designs are covered. Pre/Corequisite: BIOS 6612 or instructor permission. Offered spring semester odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### BIOS 6680 - Data Management Using SAS (3 Credits)

Students will learn how to use SAS software for data management to prepare data for analyses. Main topics include importing and exporting data, variable and dataset manipulations. Introductions to producing reports, basic statistics, figures and SAS macros are also covered.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

### BIOS 7712 - Statistical Methods for Correlated Data (1 Credit)

This course will cover statistical models and methods for serially correlated data, including autoregressive models, Markov models, and Markov chain Monte Carlo methods. Prereq: BIOS 6643

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### BIOS 7713 - Statistical Methods for Missing Data (1-2 Credits)

This course covers methodological research being carried out for longitudinal studies with missing data. Topics may include missing data mechanisms, non-ignorable missing data, multiple imputation, mixture models and sample size determinations. 1 credit or 2 credit course versions offered in variable years. Prereq: BIOS 6643

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

### CBHS 6620 - Survey Research (3 Credits)

Course examines survey research methodology, including face-to-face, telephone, mail and Internet surveys, includes: developing and ordering questions; formatting; reliability and validity; sampling; implementation; maximizing response rate; data issues; survey ethics and reporting. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)**

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ECON 5813 - Econometrics I (3 Credits)**

Theory and application of statistical techniques used to analyze economic problems. Topics include simple and multiple regression models, simultaneous equation models, and the problems encountered in their application. Students formulate models, obtain data, estimate models, interpret results and, forecast. Restriction: Restricted to students with graduate standing and coreq ECON 5803 or undergraduate majors in the Bachelor's to Master's program (ECON BA-BMA). Term offered: fall. Max hours: 3 Credits.

Grading Basis: Letter Grade

Restriction: Restricted to students with graduate standing and coreq ECON 5803 or undergraduate majors in the Bachelor's to Master's program (ECON BA-BMA).

Typically Offered: Fall.

**ECON 5823 - Econometrics II (3 Credits)**

Second course in the econometrics sequence, covering intermediate topics in cross-section and time series analysis. Topics include limited dependent variables, autoregressive and distributed lag models, longitudinal data analysis and unit roots, co-integration and other time-series topics. Prereq: ECON 5813 with a B- or higher.

Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate majors in the Bachelor's to Master's program (ECON BA-BMA). Term offered: spring. Max Hours: 3 Credits.

Grading Basis: Letter Grade

Prereq: ECON 5813 with a B- or higher Restriction: Restricted to Graduate and Graduate Non-Degree Majors or undergraduate majors in the Bachelor's to Master's program (ECON BA-BMA).

Typically Offered: Spring.

**EPID 6626 - Research Methods in Epidemiology (3 Credits)**

Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research are the focus of this class. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies. Prereq: BIOS 6601, BIOS 6680, EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6631 - Analytical Epidemiology (3 Credits)**

Fundamental analytical skills for assessing and reporting disease status, determinants of disease and their impact on public health including determining rates of disease occurrence, measures of associations between exposures and disease, and techniques for identifying and correcting for misclassifications, effect modifiers and confounder.

Prerequisites: EPID 6630 and BIOS 6601 or BIOS 6611

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6635 - Infectious Disease Epidemiology (2 Credits)**

This course considers the epidemiology of selected communicable diseases. Methods for their prevention and control, and assessment of these methods will be treated primarily through case studies. Prereq: EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6636 - Chronic Disease Epidemiology (3 Credits)**

The major chronic diseases of Western countries will be reviewed including heart disease, cancer, stroke, diabetes, neurological diseases, and selected other conditions. Factual information about epidemiology of these diseases will be provided with the discussion of methodological issues which arise. Prereq: EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6638 - Global Cardiovascular Epidemiology (2 Credits)**

A review of the major issues in global cardiovascular disease epidemiology, including trends, the extent of the disease nationally and internationally, implications of major epidemiologic studies, and strategies for prevention. Emphasis of the course will be on review and interpretation of the cardiovascular epidemiology literature. Prereq: EPID 6630.

Restriction: Offered even years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6646 - Introduction to Systematic Reviews (1 Credit)**

Introduces methods of conducting systematic reviews to identify the best available evidence about health and public health interventions. Topics will include the design and implementation of reviews, publication bias, search strategies, meta-analysis, and reporting results through the Cochrane Library. Prereq: EPID 6630 or permission of instructor.

Restriction: Offered odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 7605 - Research Methods with Secondary Data Sources (3 Credits)**

Principles and methods for research design and analysis of secondary data sources including those designed for surveillance and those derived from practice. Students evaluate whether specific research questions can be answered with secondary data. Offered Spring of even years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**HSMP 6601 - Introduction to HSMP (3 Credits)**

Provides an introduction to health systems, management and policy.

Topics include the financing and organization of the U.S. healthcare system; introduction to health policy, including stakeholder analysis; and basic managerial skills, including human resources and budgeting.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring, Summer.

**HSMP 6604 - Health Care Economics (3 Credits)**

Uses economic theory to analyze and understand the U.S. health care system. Topics include: demand and supply of health and health care, health insurance, hospitals, pharmaceuticals, and physicians. Analyzes institutional and legal incentives that affect physician, patient, and insurer decision-making.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**HSMP 6609 - Cost Benefit and Effectiveness in Health (2 Credits)**

Introduces students to the basics of economic evaluations of health care interventions or technology. Economic evaluations provide a method to assimilate different cost and health outcomes associated with medical treatments into a common metric.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 7607 - Methods in Health Services Research I (3 Credits)**

The first of a 2-course sequence in empirical methods in health services research. The statistical theory underlying basic empirical methods and the thoughtful implementation/practice of these methods are emphasized. Topics covered include: OLS, Gauss-Markov assumptions, logit/probit. Stata will be used. Prereq: BIOS 6611

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**PHOR 7611 - Applied Cost-Effectiveness Modeling (4 Credits)**

This is an applied course in cost-effectiveness analysis. This course will apply the theory and methods learned in HSMP 6609 to develop competency in conducting cost-effectiveness analysis in health and medicine. Students will complete their own cost-effectiveness model. Prerequisite: HSMP 6609 Cost Benefit/Cost Effectiveness Analysis. Restrictions: Successful completion of HSMP 6609 or permission of primary instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**PHOR 7613 - Pharmaceutical Economics (3 Credits)**

An introduction to pharmaceutical economics with emphasis on the role of pharmaceuticals and the pharmaceutical industry, regulation, and pricing. This course will also cover modeling microeconomic data including costs and health state preferences for advanced economic evaluation using primary data sources.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

**PHOR 7615 - Pharmacoepidemiology (2-4 Credits)**

This course builds upon fundamental concepts and methods of epidemiology, applied to the study of pharmaceuticals. Topics included: the FDA approval process, mechanisms of adverse drug effects, methods and data systems for studying drug-effect relationships, and evaluating published pharmacoepidemiology studies. Crosslisted: EPID 7615. Prereq. EPID 6630, 2-course biostatistics series (either BIOS 6601-6602 or BIOS 6611-6612) Restrictions: Consent of instructor to determine level of credit to be taken.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**PHOR 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in pharmaceutical sciences. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Pharmaceutical Sciences (PhD)

### Overview

From drug discovery all the way to clinical trials, our PhD program in Pharmaceutical Sciences will give you ideal training to become an innovator. Major areas of study include biotechnology, molecular biophysics, drug delivery, nanotechnology, clinical pharmaceutical sciences, and medicinal chemistry.

### Admission Requirements

The normal requirements for admission to the graduate program in pharmaceutical sciences include a bachelor of arts or science degree from an accredited institution, as well as an academic record which satisfies the minimum admission requirements established by the CU Graduate School. Admissions are for the fall semester only.

An undergraduate degree in pharmacy, chemistry, biology, or chemical engineering is excellent preparation for graduate training in pharmaceutical sciences; however, no specific undergraduate major is required. All applicants for the program should have completed a year of study in the following subjects: general chemistry, organic chemistry, calculus, biology, and physics. In addition, courses in the following subjects will be highly recommended to supplement the student's background: biochemistry, statistics, cell biology, physical chemistry, computer science, and immunology. Under special circumstances, deficiencies in important areas may be made up within the first year after entrance into the program.

Normally, admission to the program will be dependent upon an undergraduate GPA of 3.0 or better. Students applying with a GPA less than 3.0 may be considered individually on a provisional basis. If you do not have a degree from a U.S. or Canadian institution, your official transcript will be evaluated by the Office of International Affairs.

**The admission deadline for completed applications to be received at the School of Pharmacy is Dec. 1.** Given that admission to the program is very competitive, it is impossible to evaluate your qualifications for admission (test scores, grades) until the selection committee assesses the entire applicant pool.

### Degree Requirements

Students must complete the following requirements:

- Two Research Rotations in Fall/Spring semesters of 1st year (PHSC 7650; 1-3 credits each)
- Seminar in Pharmaceutical Sciences in each semester (PHSC 7568; 2 credits/Fall/Spring/1st-3rd Year only)
- Ethical Issues in Toxicology & Pharmaceutical Sciences (PHSC 7400 - 1 credit)

Code	Title	Hours
PHSC 7310	Fundamentals of Pharmaceutical Sciences	3
PHSC 7320	Physical Pharmacy & Pharmaceutical Sciences	3
PHSC 7330	Development of Drugs and Biologics	3
<i>Other Science Courses Commonly Taken:</i>		
PHSC 7328	Computational Design in Drug Discovery	3
PHSC 7340	Molecular Biophysics and Enzymology	2
TXCL 7452	Introduction to Clinical Pharmacology	3
TXCL 7353	Immunology: Immunotoxicology and Immunopharmacology	2
PHSC 7565	Applied Statistics for Pharm Science and Toxicology	2
STBB/PHSC 7608	Molecular Interactions	3
STBB/PHSC 7609	Biophysics & Spectroscopy	3
PHSC 7651	Pharmaceutical Biotechnology (Crosslisted with CU Boulder as CHEN 5838)	3
PHSC 7653	Protein Formulation	2
PHSC 7660	Liposome-based Drug Delivery	2
PHSC 7665	Pharmacokinetic Principles & Applications	3
PHSC 7345	Nanotechnology & Drug Delivery	2
PHSC 8990	Doctoral Thesis	1-10

## Toxicology (PhD)

At the School of Pharmacy, our programs are characterized by a vigorous research environment. A major research emphasis area is toxicology, which studies the adverse effects of drugs and xenobiotics on the body. Toxicology is the biomedical science concerned with understanding the adverse effects of chemicals and other dangerous substances on living organisms.

Toxicologists seek to identify the toxic effects of drugs and chemicals on living organisms, and to understand the underlying molecular and cellular mechanisms associated with toxic injury. In doing so, toxicologists use state-of-the-art biological and chemical techniques to answer questions such as: How dangerous are chemicals to people? How much exposure is required to cause harm? What are the effects of such chemical exposures?

The objective of the toxicology graduate program at the University of Colorado is to educate pre-doctoral students to develop independent research careers in molecular and environmental toxicology. Upon completion of the toxicology graduate program, students will receive a PhD degree in toxicology and utilize their training in academia, industry or government.

### Mission and Goals:

At the School of Pharmacy, our programs are characterized by a vigorous research environment. A major research emphasis area is toxicology, which studies the adverse effects of drugs and xenobiotics on the body. Toxicology is the biomedical science concerned with understanding the adverse effects of chemicals and other dangerous substances on living organisms.

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is required to cause harm? What are the effects of such chemical exposures?

The objective of the toxicology graduate program at the University of Colorado is to educate pre-doctoral students to develop independent research careers in molecular and environmental toxicology. Upon completion of the toxicology graduate program, students will receive a PhD degree in toxicology and utilize their training in academia, industry or government.

## Admission Requirements

Admission requirements to the graduate program in toxicology include a bachelor of arts or science degree from an accredited institution, as well as an academic record that satisfies the minimum admission requirements established by the CU Graduate School. All applicants for the program should complete a year of study in the following subjects: general chemistry, organic chemistry, calculus, biology, English and physics.

In addition, courses in the following subjects are highly recommended to supplement the student's background: physiology, biochemistry, statistics, cell biology, physical chemistry, and computer science.

Under special circumstances, deficiencies in important areas may be made up within the first year after entrance into the program. Normally, admission to the program will be based on an undergraduate GPA of 3.0 or better. However, applicants' recommendations, research experience and additional individual accomplishments will also be considered in the admissions process.

**Applications are accepted online only and are due December 1st.**

## Degree Requirements

### First Year

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
TXCL 7310	Fundamentals of Pharmaceutical Sciences	3
TXCL 7322	Molecular and Target Organ Toxicology	3
TXCL 7400	Ethical Issues in Toxicology and Pharmaceutical Sciences	1
TXCL 7565	Applied Statistics for Pharm Science and Toxicology	2
TXCL 7325	Current Topics in Toxicology Research	1
TXCL 7650	Research Rotation in Toxicology	1-5
<b>Hours</b>		<b>11-15</b>

### Spring

CANB 7620	Histophysiology	3
TXCL 7323	Environmental and Target Organ Toxicology	2
TXCL 7321	Careers in Toxicology	1
TXCL 7325	Current Topics in Toxicology Research	1
TXCL 7650	Research Rotation in Toxicology	1-5
<b>Hours</b>		<b>8-12</b>

### Summer

TXCL 8990	Doctoral Thesis	1
<b>Hours</b>		<b>1</b>
<b>Total Hours</b>		<b>20-28</b>



## Second Year

Course	Title	Hours
<b>Year 2</b>		
<b>Fall</b>		
Complete coursework below totaling 5 credits:		
Toxicology Elective (Optional)		
TXCL 7325	Current Topics in Toxicology Research	1
TXCL 7650	Research Rotation in Toxicology	1-5
<b>Hours</b>		<b>2-6</b>
<b>Spring</b>		
Complete coursework below totaling 5 credits:		
Toxicology Elective (Optional)		
TXCL 7325	Current Topics in Toxicology Research	1
TXCL 7650	Research Rotation in Toxicology	1-5
<b>Hours</b>		<b>2-6</b>
<b>Summer</b>		
TXCL 8990	Doctoral Thesis	1
<b>Hours</b>		<b>1</b>
<b>Total Hours</b>		<b>5-13</b>

## Third Year & Beyond

Code	Title	Hours
<b>Students must continue registering for Research or Dissertation credits until completion/defense of thesis:</b>		
TXCL 7650	Research Rotation in Toxicology	1-5
TXCL 8990	Doctoral Thesis	1-10
Optional Elective Courses		

## Elective Courses

Code	Title	Hours
TXCL 7320	Physical Pharmacy & Pharmaceutical Sciences	3
TXCL 7330	Development of Drugs and Biologics	3
TXCL 7340	Ocular Physiology, Pathophysiology & Pharmacology	1
TXCL 7452	Introduction to Clinical Pharmacology	3
TXCL 7475	Advanced Topics in Toxicology (For students with specialty study plans)	1-6
TXCL 7575	Drug Development for the Toxicologist	2
TXCL 7665	Pharmacokinetic Principles & Applications	3
TXCL 7750	Proteomics & Metabolomics for Biomarker Discovery	3
TXCL 7751	NeuroToxicology	2

## Course Descriptions

**TXCL 7310 - Fundamentals of Pharmaceutical Sciences (3 Credits)**  
This core course explores key aspects of Pharmaceutical Sciences. Major themes will focus on macromolecular interactions, pharmaceuticals, pharmacodynamics, apoptosis, signal transduction and immunology. Critical thinking and problem solving skills will be emphasized via lectures discussion, and computer-based data analyses. Crosslisted: PHSC 7310.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7320 - Physical Pharmacy & Pharmaceutical Sciences (3 Credits)**  
This course is designed to provide students with a thorough overview of physical chemical principles vital to Pharmaceutical Sciences; a course for someone whose research efforts will involve pharmaceutical development and/or the evaluation of drugs. Cross listed with PHSC 7320.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**TXCL 7321 - Careers in Toxicology (1 Credit)**

This course builds upon and expands student knowledge relating to career trajectories within the toxicological sciences. Knowledge and experiences gained from this course will enable the student to make a more informed decision regarding the career choices available to them.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**TXCL 7322 - Molecular and Target Organ Toxicology (3 Credits)**

This course is designed to provide a foundation in molecular mechanisms of toxicity. Biochemical mechanisms underlying toxicity will be analyzed and integrated with discussions of reactive metabolites, oxidative stress, signal transduction, cell death and organ specific toxicity. Prereq: Discussion with and consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7323 - Environmental and Target Organ Toxicology (2 Credits)**

The course is designed to provide a fundamental understanding of environmental-related toxicants (e.g. solvents, pesticides, metals, radiation) with emphases on the molecular mechanisms underlying their organ specific toxicity and on risk assessment. Prereq: Discussion with and consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**TXCL 7325 - Current Topics in Toxicology Research (1 Credit)**

This is a mandatory 1-credit hour course for Toxicology program graduate students. Each student is expected to lead one discussion per year, papers discussed will be authored by the upcoming Toxicology seminar series speaker. Grade given after Spring semester.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 15.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**TXCL 7330 - Development of Drugs and Biologics (3 Credits)**

A survey course designed to introduce students to pharmacokinetic and pharmacodynamics principals used in drug research and development by faculty of the Skaggs School of Pharmacy, Department of Pharmaceutical Sciences. The Phoenix Winnonlin Computer software, is used to complete homework. Cross listed with PHSC 7330

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.



**TXCL 7340 - Ocular Physiology, Pathophysiology & Pharmacology (1 Credit)**

This interactive course will survey major diseases of the vision system. Lectures will cover the physiological basis for disease and current treatment options being used in the clinic, with emphasis on opportunities for new strategies to treat and prevent disease.

Grading Basis: Letter Grade

Typically Offered: Summer.

**TXCL 7353 - Immunology: Immunotoxicology and Immunopharmacology (2 Credits)**

This course is designed to introduce students to basic immunology principles used in drug research and development, and provide essential knowledge on the immune response, its diagnosis and its modification by drugs and chemicals.

Grading Basis: Letter Grade

Typically Offered: Fall.

**TXCL 7400 - Ethical Issues in Toxicology and Pharmaceutical Sciences (1 Credit)**

The purpose of this course is to expose students to ethical issues in the fields of Toxicology and Pharmaceutical Sciences. Emphasis will be placed on research conduct, animal use, and other timely issues relevant to these fields.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7452 - Introduction to Clinical Pharmacology (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery and development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Requisite: Permission of Course Director. (crosslisted with PHSC 7452)

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**TXCL 7475 - Advanced Topics in Toxicology (1-6 Credits)**

Considers special topic of current interest in toxicology. Course may be repeated for credit with instructor's consent. Prereq: Consent of Instructor/Program Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 13.

Typically Offered: Fall.

**TXCL 7564 - Environmental Risk Assessment and Applied Toxicology (2 Credits)**

Provides students with experience in risk assessment, environmental toxicology for public health and regulatory decision making. Topics include comprehensive human health risk assessments, baseline/probabilistic statistics, ecological risk assessment activities associated with emergency action, medical monitoring, role toxicology plays in courtroom.

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 7565 - Applied Statistics for Pharm Science and Toxicology (2 Credits)**

Students will learn several basic statistical techniques for analyzing data including when and how to use them, the appropriate assumptions for these methods, and how to clearly articulate their statistical results in the context of toxicology and pharmaceutical sciences studies. Prerequisite: Pharmaceutical Sciences and Toxicology graduate students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7575 - Drug Development for the Toxicologist (2 Credits)**

Course will provide an understanding of regulatory obligations required for submitting an N.D.A. as well as discussions related to additional corporate roles including activities for in vivo study conduct & due diligence review for licensing opportunities. Prereq: TXCL 7322

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 7650 - Research Rotation in Toxicology (1-5 Credits)**

Research work in toxicology.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**TXCL 7665 - Pharmacokinetic Principles & Applications (3 Credits)**

A survey course to introduce students to pharmacokinetic and pharmacodynamics principles used in drug research and development.

Taught by faculty from the School of Pharmacy, Department of Pharmaceutical Sciences. Phoenix WinNonlin Computer software will be used in the course. Cross-listed with PHSC 7665

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 7750 - Proteomics & Metabolomics for Biomarker Discovery (3 Credits)**

An introduction to mass spectrometry followed by a focus on quantitative metabolomics or proteomics workflows. Workflows comprise sample preparation, data acquisition, and data analysis. Additional topics include imaging mass spectrometry, lipidomics, post-translational modification analysis, and clinical applications. Offered odd years.

Grading Basis: Letter Grade

Typically Offered: Fall.

**TXCL 7751 - NeuroToxicology (2 Credits)**

NeuroToxicology offers a specialization in neuroscience-related toxicology; Topics (basic and applied) include: neuropharmacology (affect of ethanol/drugs), neurophysiology (metabolic poisons), developmental neurotoxicology (pesticides and neurodevelopmental disorders, radiation), and behavioral toxicology (cognitive function).

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in toxicology. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

# Academic Services and Student Support

## CU Anschutz Student Affairs

Many student support services are provided by the CU Anschutz Student Affairs Office, including several of the services listed below.

### Dr. Jan Gascoigne

Associate Vice Chancellor for Student Affairs

Associate Clinical Professor, Community & Behavioral Health

### Carl Johnson

Director of Student Engagement

### Craig Wimmer, MS Ed, CHES, Certified WellCoach

Director of Student Health Promotion

University of Colorado | Anschutz Medical Campus  
Education 2 North, Room 3210

## CARE Team

The Campus Assessment, Response & Evaluation (CARE) Team is committed to improving campus safety and student success by evaluating individuals that may pose a risk safety of themselves or others. The team coordinates with students, faculty, and staff as well as concerned others to identify, assess, and intervene with individuals of concern.

The CARE Team strives to:

- Provide early assistance to individuals in distress or at risk of harming themselves or others
- Help prevent situations of concern from escalating
- Ensure the well-being and safety of the university community
- Work collaboratively with faculty, staff, administration, and concerned others
- Educate the campus community about identifying concerning behaviors
- Create a campus culture that fosters sharing concerns

More information on behaviors that might be a cause for concern, and the reporting process is available online through the CARE Team website (<https://www.cuanschutz.edu/student/support/care-team/>), or via a phone consultation at 303.724.8488.

## CU Anschutz Shares

This is a resource available to students facing temporary financial hardship that threatens the student's ability to successfully complete the current semester. To be eligible for consideration, a student:

- Must be experiencing an unanticipated situation (accidents, food insecurity, natural disasters, homelessness, etc.)
- Must be currently enrolled and regularly attending at least one course at the CU Anschutz Campus
- Can provide sufficient documentation of current need
- Must exhaust all other possible financial resources (student loans, Medicaid, personal financial accounts, family/friends, etc.) before applying for student emergency funds

Additional information on eligibility, application process, and other resources are available via the CU Anschutz Shares website (<https://www.cuanschutz.edu/student/support/cu-anschutz-shares/>), or by emailing [cuanschutzshares@ucdenver.edu](mailto:cuanschutzshares@ucdenver.edu), or calling 303-724-2866.

[www.cuanschutz.edu/student/support/cu-anschutz-shares/](https://www.cuanschutz.edu/student/support/cu-anschutz-shares/)), or by emailing [cuanschutzshares@ucdenver.edu](mailto:cuanschutzshares@ucdenver.edu), or calling 303-724-2866.

## Disability Resources & Services

Disability Resources & Services envisions an educational environment that is inclusive and embodies the equality of opportunity. We work with students with disabilities to provide equal access to an education and do so by providing advocacy, accommodations, and referrals to on-campus resources and off-campus community resources.

The DRS staff members also work closely with faculty and staff in an advisory capacity to assist with the development of reasonable accommodations. This partnership allows students with disabilities to demonstrate their abilities in both the classroom and clinical settings. Accommodations include but are not limited to: alternative testing (extra time for exams, taking exams in a reduced distraction environment), digital textbooks, captioning services, interpreting services, special furniture, and assistive technology.

Location: Strauss Health Sciences Library

Phone: (303) 724-5640

Email: [sherry.holden@cuanschutz.edu](mailto:sherry.holden@cuanschutz.edu)

## Housing

CU Anschutz does not provide on-campus housing, but students can access the Off-Campus Housing Website with their university credentials to gain housing and roommate information in the Denver and Aurora metro areas. Many Schools, Colleges, and Programs offer social media sites for students seeking roommates, please check with the leadership of your program for more information.

More information from CU Anschutz Student Affairs can be found on the website at <https://www.cuanschutz.edu/student/resources/housing> (<https://www.cuanschutz.edu/student/resources/housing/>).

## Housing & Roommate Services

Use our 3<sup>rd</sup> party Off-Campus Housing Website (<https://offcampushousing.ucdenver.edu/>) to:

- Search rental listings
- Request or shop for roommates
- List a unit available to students

When searching for housing, a minimum of a four-day weekend is recommended before enrolling to find a place to live. For those unfamiliar with the U.S. housing and rental market, use the Guide to Living Off-Campus for International Students ([https://www.ucdenver.edu/docs/librariesprovider254/student-resources/anschutz-off\\_campus\\_housing\\_guide.pdf?sfvrsn=5444dcb9\\_2](https://www.ucdenver.edu/docs/librariesprovider254/student-resources/anschutz-off_campus_housing_guide.pdf?sfvrsn=5444dcb9_2)).

## Short-Term Housing

For those needing short-term arrangements, we suggest RotatingRoom (<http://www.rotatingroom.com/>), a 3<sup>rd</sup> party website featuring sublets near medical schools and hospitals nationwide.

## Landlord Resources

Landlords wishing to post a vacancy with the university can:

1. Visit our Off-Campus Housing Website
2. Select "Have a listing? Post it now"
3. Complete the steps as prompted.

Note: this is the only university-sponsored location where housing can be posted. Posting flyers on campus is not permitted.

Additional questions can be directed to Off-Campus Partners via email ([info@offcampuspartners.com](mailto:info@offcampuspartners.com)), or by calling 1-877-895-1234.

## International Student and Scholar Services (ISSS)

International Student and Scholar Services (ISSS) is in the Office of International Affairs (OIA) and provides assistance to international students in nonimmigrant visa classifications. Please visit the website to see an overview of services or to schedule an appointment.

Location: Fitzsimons Building, Ground Floor, Ste. EG305, EG305A, and EG306, Aurora, CO 80045

Phone: 303-724-0795

Website: <http://international.ucdenver.edu/iss> (<http://international.ucdenver.edu/iss/>)

The International Student & Scholar Services (ISSS) unit in the Office of International Affairs serves approximately 1,400 international students and 500 international scholars from all over the world each year at the Denver and Anschutz campus. ISSS is responsible for ensuring university-wide compliance with a wide range of federal regulations relating to the enrollment and/or employment of international students and scholars. Sponsored Student Services, a sub-unit within ISSS, also provides advising to students sponsored by an international third-party organization.

The University of Colorado Denver | Anschutz Medical Campus is authorized by the U.S. Department of Homeland Security to issue Forms I-20 and by the U.S. Department of State (DOS) to issue DS-2019 Certificates of Eligibility. These documents permit international students to apply for an F-1 or J-1 visa to study at the University.

ISSS collaborates with international students, faculty, researchers, and staff to contribute to the diverse teaching, research, and learning community at The University of Colorado Denver | Anschutz Medical Campus. We provide expert holistic immigration advising; partner with stakeholders to advocate for our students and scholars; and foster intercultural exchange on our campuses. We support our students and scholars as they navigate life in the U.S. and endeavor to reach their goals.

ISSS staff members serve students based on a portfolio model; to find out more about the academic portfolios and to learn about your assigned International Services Specialist, please click here (<https://www.ucdenver.edu/services/international-student-and-scholar-services/about/academic-portfolios/#ft-cu-denver-campus-0>). To schedule an appointment with a staff member, please click here (<https://www.ucdenver.edu/services/international-student-and-scholar-services/appointments/>). For additional information about ISSS and the services we provide, visit our website (<https://www.ucdenver.edu/services/international-student-and-scholar-services/>).

## LGBTQ+ Hub

The mission of the LGBTQ+ Hub is to create and maintain an inclusive campus environment for LGBTQ+ and allied students, faculty, staff, patients and visitors on campus and within the Aurora community by:

- Promoting visibility, awareness and a sense of community;
- Connecting LGBTQ+ students, faculty and staff with peer-to-peer support and community resources;
- Providing education about the LGBTQ+ community;

- Establishing a repository for LGBTQ+ health research and competent patient care;
- Advocating for LGBTQ+ interests, including recruitment and retention; and
- Creating intentional partnerships to provide direct services to LGBTQ+ people on campus and in the Aurora community.

The LGBTQ+ Hub is envisioned as a one-stop shop that can achieve a campus and Aurora community culture where LGBTQ+ people are highly visible, are fully included and integrated in leadership, day-to-day living, communication and dialogue, and where vibrant partnerships exist between the LGBTQ+ Hub and the campus and Aurora communities-at-large.

Additional information on the LGBTQ+ Hub, including Core Beliefs, Guiding Principles, and Values, and programs and services supported are available online (<https://www.cuanschutz.edu/offices/diversity-equity-inclusion-community/programs-and-initiatives/lgbtq-hub/>).

Located within the Office of Diversity, Equity, Inclusion, and Community Engagement.

Email: [lgbtqhub@cuanschutz.edu](mailto:lgbtqhub@cuanschutz.edu)

## Office of Information Technology (OIT)

The Office of Information Technology (OIT) (<https://www1.ucdenver.edu/offices/office-of-information-technology/>) works in partnership with academic and business units to provide technical support to meet the needs of students, faculty and staff at the CU Denver | Anschutz Medical Campus. OIT serves as the primary source of campuswide technology services (<https://www1.ucdenver.edu/offices/office-of-information-technology/services/>) in partnership with school, college and department IT professionals.

Services range from providing wireless networks, email (<http://myemail.ucdenver.edu/>) and university passwords (<https://passport.ucdenver.edu/passwordreset/>), software (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/>), desktop services, security (<https://www1.ucdenver.edu/offices/office-of-information-technology/software/how-do-i-use/cu-secure-and-multi-factor-authentication/>), and systems development, to protecting the integrity of the university's data and administrative systems. Additional resources are available from the student technology guide (<https://www1.ucdenver.edu/offices/office-of-information-technology/get-help/cu-anschutz-student-tech-guide/>) and technology tools and software (<https://www1.ucdenver.edu/offices/office-of-information-technology/get-help/working-remotely/tools-and-software/>) remote learning and working webpages.

## Medical Malpractice Coverage

The University's medical malpractice coverage is provided through a Self-Insurance Trust (the "Trust") authorized and established pursuant to a resolution of the Regents of the University of Colorado. This coverage is subject to the terms of the Trust's Coverage Document and extends to health care practitioners-in-training who are enrolled at the University.

Health care practitioners-in-training are considered "public employees," and therefore, their liability in any medical malpractice action is limited by the Colorado Governmental Immunity Act (C.R.S. 24-10-114).

This coverage applies to the persons described above while they are involved in any activity or program that is part of the academic program and which has received the prior approval of their respective school at the Anschutz Medical Campus regardless of where such activity or program may take place, as long as it occurs within the U.S. In the event

that the activity takes place in a state other than Colorado, and a court determines that the limits of the Colorado Governmental Immunity Act do not apply, the Trust provides coverage of at least \$1,000,000 per incident. For further information, please contact Professional Risk Management at 303-724-7475

Students who agree to participate in and are approved for any educational or training program outside the U.S. are advised that the University of Colorado Self-Insurance and Risk Management Trust does not provide malpractice coverage for their activities outside of the U.S.

## Strauss Health Sciences Library

Mail Stop A033  
12950 E. Montview Boulevard  
Aurora, CO 80045

Phone: 303-724-2152  
Website: <https://library.cuanschutz.edu/>  
Email: AskUs@CUAnschutz.edu

Students are encouraged to become familiar with the Strauss Health Sciences Library resources early in their professional studies. On campus, no login is required in order to reach online library resources. Off campus, students log in to access online resources with their Passport account just as they do to access other resources such as the student portal.

The library provides an extensive collection of allied health, dental, medical, nursing and pharmacy resources, including more than 273,000 print and audiovisual volumes, hundreds of electronic books, and more than 60,000 electronic full-text journals. E-resources include PubMed, Up to Date, Ovid MEDLINE, CINAHL, PsycINFO, Web of Science, MICROMEDEX, Clinical Key, Clinical Key for Nursing and many others.

E-resources may be accessed by students enrolled at CU Anschutz at no charge through the library website <https://library.cuanschutz.edu/>. Free classes, online tutorials, research consultations, Ask Us live chat and expert online searches done by the library's professional searchers are all services accessible from the library web pages.

To access the library's e-journals, use the search box on the library home page and click the *Journal Search* tab. A complete list library databases can be found at <https://library-cuanschutz.libguides.com/>. Search the library's online catalog, including books, older journal holdings and audiovisual material in the Strauss Health Sciences Library. Materials not available at the Strauss Health Sciences Library may be obtained through Interlibrary Loan for a fee.

Check that your account is active, click the "Library Accounts" link under the *Services* tab on the library home page. Use your Passport ID username (NOT your email address) and password. If that does not work, call the Service Desk at 303-724-2152 or email us at AskUs@CUAnschutz.edu.

Free classes are listed at <https://library-cuanschutz.libcal.com/calendar/straussclasses> (<https://library-cuanschutz.libcal.com/calendar/straussclasses/>). Schedule library classes at alternative times by using the Ask Us link on the library home page sidebar.

The library provides access to computers with Microsoft Office and other applications in the library's first floor Information Commons, and offers individual and group study rooms on all three floors.

Wireless printing to the library's pay for print system is available through several methods; ask at the Service Desk for details, or see information on the website (<https://library.cuanschutz.edu/help/technology-help/>

wireless-printing/). One printer in the library gives access to your Student Printing account.

PASCAL, the library's storage facility for older materials located on the University of Colorado Denver | Anschutz Medical Campus offers a drop-off and pick-up location for library materials. More information on PASCAL can be viewed on the website (<https://library.cuanschutz.edu/pascal/>).

## Student Health Promotion

### Office of Student Health Promotion

Website: <https://www.cuanschutz.edu/student/health-wellness/health-promotion> (<https://www.cuanschutz.edu/student/health-wellness/health-promotion/>)

Email: [health.promotion@cuanschutz.edu](mailto:health.promotion@cuanschutz.edu)

The Office of Student Health Promotion strives to create a supportive community where students feel a sense of belonging, where their holistic health and wellbeing are nurtured, and they are empowered to excel in their academic training. Through events, services, resources and student involvement, Student Health Promotion offers students support and opportunities of personal development towards thriving while at CU Anschutz. Some of our tools and resources include:

- **YOU@CUAnschutz**

Website: <https://you.cuanschutz.edu/>

Email: [health.promotion@cuanschutz.edu](mailto:health.promotion@cuanschutz.edu)

Free and confidential online tool that provides each student with personalized content to promote holistic well-being to help you succeed, thrive, and matter while at CU Anschutz. YOU personalizes content with feedback from you in short "Self-Check" surveys, as well as offering a goal setting tool to support your success. Log-in to your personal account: [you.cuanschutz.edu](https://you.cuanschutz.edu)

- **WeCU Peer Coaches**

Website: <https://www.cuanschutz.edu/student/health-wellness/health-promotion/peer-coaching> (<https://www.cuanschutz.edu/student/health-wellness/health-promotion/peer-coaching/>)

Email: [health.promotion@cuanschutz.edu](mailto:health.promotion@cuanschutz.edu)

Peer coaches are students trained to meet one-on-one to discuss and support students in creating positive, meaningful change in their lives. A peer coach will help students identify priorities, strengths, and motivations to guide a conversation designed to offer students a personalized action plan to achieve success in their goals. Appointments are made through the Student Health Promotion Website (<https://www.cuanschutz.edu/student/health-wellness/health-promotion/>).

- **Student Health Promotion Committee**

Website: <https://www.cuanschutz.edu/student/health-wellness/health-promotion/committee> (<https://www.cuanschutz.edu/student/health-wellness/health-promotion/committee/>)

Email: [health.promotion@cuanschutz.edu](mailto:health.promotion@cuanschutz.edu)

Students representing each school/college work collaboratively to implement positive initiatives and create a culture of health and wellness on campus. Creating programming, education, and marketing, the SHPC apply student perspective to meet the needs and interests around health and well-being. To get involved, or learn more about the committee or meeting times access their page through the Student Health Promotion Website (<https://www.cuanschutz.edu/student/health-wellness/health-promotion/>).



### • The CU Anschutz Phoenix Center

Website: <https://www.cuanschutz.edu/student/support/phoenix-center> (<https://www.cuanschutz.edu/student/support/phoenix-center/>)

The CU Anschutz Phoenix Center is a **free and confidential** resource and assistance service to survivors of interpersonal violence (relationship violence, sexual violence, and stalking), as well as their friends, families, and concerned others. The PCA support services include academic advocacy, assistance reporting to the school and/or law enforcement at the survivor's request, safety planning, court accompaniment, emotional support, and more. The PCA also provides campus education and training, awareness raising events, and campus policy guidance.

For appointments or information: 303-724-9120  
24/7 Free and Confidential Helpline: 303-556-CALL (2255)  
Rachael.Williams@CUAnschutz.edu

## Student Outreach and Support

Through intentional collaboration with the schools and colleges, the Office of Student Outreach and Support works to ensure that students are connected to the appropriate resources to meet their goals and develop new skills in navigating challenging experiences. The Office of Student Outreach and Support also takes a preventative approach to risk assessment by offering resources, referrals, and support to both students who may be displaying concerning behaviors and those impacted by those behaviors.

In addition, Student Outreach and Support manages the Anschutz Shares process. Anschutz Shares supports students in financial distress by providing money to students in crisis. More information can be found at <https://www.cuanschutz.edu/student/support/cu-anschutz-shares> (<https://www.cuanschutz.edu/student/support/cu-anschutz-shares/>).

Faculty, staff, students, guests and concerned others are encouraged to refer students' behavior that they perceive as concerning, worrisome, or threatening to the Office of Student Outreach and Support. Referrals can be submitted online at <https://www.cuanschutz.edu/student/support/care-team> (<https://www.cuanschutz.edu/student/support/care-team/>).

The Office of Student Outreach and Support also supports the Campus Assessment, Response, & Evaluation (CARE) Team. This team of student affairs administrators and campus partners meets to address the health and safety needs of students as well as the campus community.

Per the Duty to Report Criminal and Threatening Behavior Policy, University staff, faculty, students and volunteers are required to report any threatening or criminal behavior to police and are encouraged to follow up with a Care Report. Additionally, per the CARE Team Policy all University staff, faculty, students, and volunteers are strongly encouraged to report concerning student behavior to the CARE Team. Referrals can be submitted online at <https://www.cuanschutz.edu/student/support/care-team> (<https://www.cuanschutz.edu/student/support/care-team/>).

# Commencement Procedures and Information

## Application to Graduate

A student planning to graduate must submit an application for graduation to the Registrar's Office according to the schedules below.

The application for graduation is available through the student's portal. Please visit our graduation application guide for assistance.

December 2022 Candidates: Graduation application due Friday, September 9, 2022

May 2023 Candidates: Graduation application due Friday, February 3, 2023

August 2023 Candidates: Graduation application due Friday, June 9, 2023

December 2023 Candidates: Graduation application due Friday, September 8, 2023

## Conferral Dates for Graduation:

Fall 2022: December 16, 2022  
Spring 2023: May 19, 2023  
Summer 2023: August 18, 2023

Please note that the Conferral Date (official date of completion) may not be the same as the Commencement Ceremony.

## Diplomas

### HOW TO APPLY FOR GRADUATION:

#### Meet With Your Advisor

Make an appointment with your assigned advisor in your school or college's Advising Center to verify graduation requirements and to make sure you'll meet them by the end of the semester.

- College of Nursing (<https://nursing.cuanschutz.edu/>)
- Colorado School of Public Health (<https://coloradosph.cuanschutz.edu/about-us/>)
- The Graduate School (<https://graduateschool.ucdenver.edu/about-us/>)
- School of Dental Medicine (<https://www.ucdenver.edu/academics/colleges/dentalmedicine/AboutUs/Pages/ContactUs.aspx>)
- School of Medicine (<https://medschool.cuanschutz.edu/deans-office/about-us/contact-us/>)
- Skaggs School of Pharmacy and Pharmaceutical Sciences (<https://pharmacy.cuanschutz.edu/about-us/>)

### Apply for Graduation

Once you have verified that you're on track to graduate, use your UCDAccess student portal to apply for graduation:

1. Once logged in, click on Academics under your Student Center.
2. Click Apply for Graduation

**Please note:** Your Intent to Graduate Form needs to be submitted between the first day of school and the last day to drop/add classes of the term you intend to graduate.

### Want to Walk at Graduation?

If you plan to participate in commencement ceremonies, you will need to register for this separately on the Commencement website.

Website: [www.cuanschutz.edu/commencement](http://www.cuanschutz.edu/commencement) (<http://www.cuanschutz.edu/commencement/>)



## Important Notes Regarding Diplomas and Graduation

- Watch for information concerning transcripts, diplomas, Commencement, etc., via email through your CU Anschutz account following the acceptance of your graduation application.
- Diplomas for degrees conferred at Anschutz Medical Campus are automatically mailed out to the diploma address in the student's record.
- Diplomas will be awarded to approved candidates for degrees at the annual commencement ceremonies for students at the Anschutz Medical Campus or after official degree awarding dates as approved by the Board of Regents.

Diplomas that have been lost, stolen, or damaged may be replaced by sending a signed, written request to the Office of the Registrar stating the reason for replacement. There is a \$40 replacement fee for Ph.D., M.S., M.P.A.S., and B.S. diplomas. The replacement fee for D.D.S., D.N.P., D.P.T, M.D., and Pharm D diplomas is \$70.

Payment must be made by check or money order, made payable to the University of Colorado. (Credit cards are not currently accepted.)

## Co-Curricular Engagement

### Student Clubs and Organizations

The Office of Student Affairs recognizes interdisciplinary student clubs and organizations. Any interdisciplinary student organization wishing to be a recognized student organization at CU Anschutz should acquaint themselves with the policy ([https://www1.ucdenver.edu/docs/librariesprovider129/student-organizations/stuorgs\\_manual\\_events.pdf?sfvrsn=89c1c9b9\\_2](https://www1.ucdenver.edu/docs/librariesprovider129/student-organizations/stuorgs_manual_events.pdf?sfvrsn=89c1c9b9_2)) and complete the CU Anschutz Student Organization Registration and Affiliation Request Form. ([https://ucdenverdata.formstack.com/forms/ocss\\_studentorganization\\_registrationrenewal/](https://ucdenverdata.formstack.com/forms/ocss_studentorganization_registrationrenewal/))

Student organizations are required to renew their recognition each year July 1- August 14. Renewal In order to complete the recognition process, each organization will need to confirm three (3) officers and one (1) faculty/staff advisor, as well as upload their constitution/by-laws. All CU Denver student organizations require a non-discrimination clause in their constitution.

More information can be found at <https://www.cuanschutz.edu/student/campus-life/organizations> (<https://www.cuanschutz.edu/student/campus-life/organizations/>)

### Student Senate

The Student Senate is the University of Colorado Denver | Anschutz Medical Campus' student governing body. The Senate is composed of elected representatives from each class of the various disciplines at the University of Colorado Denver | Anschutz Medical Campus, including the School of Medicine, School of Dental Medicine, International Dentistry Program, College of Nursing, Graduate School Programs, School of Pharmacy, Colorado School of Public Health, Child Health Associate/Physician Assistant Program, and Physical Therapy Program.

It should be emphasized that input to the Senate is in no way restricted to elected senators. All Senate meetings are open to any interested students, and participation by non-Senate members is greatly encouraged. Only through direct participation and conscientious election

of Senators who reflect the majority opinion can students insure that their views are being accurately represented.

Meetings are typically scheduled the 2nd and 4th Monday of each month at 5:30pm. The meetings take place in Education 2 North. The Senate officers serve from June through the following May. Senators serve from September through May.

The primary focus of the Senate is the promotion of interdisciplinary contact and cooperation between those various disciplines at the University of Colorado Anschutz Medical Campus. The Senate is the only vehicle through which the opinions of the entire student body can be conveyed to the administration, faculty, and others. Through past efforts, the Senate has established an excellent working rapport with the administration, and the opportunity for meaningful student input in the modification of University of Colorado Anschutz campus-wide policy is evident. The Senate has student representatives on a number of campus committees and has access to senior level administrators to help shape University practice and policy.

Attendance of the Student Senate president at the monthly Regent meetings is encouraged.

Students are encouraged to discuss issues which concern campus matters with their Senate representatives and encourage the Senate to report regularly on information and issues discussed at Senate meetings. Meetings are open to all students, with voting privileges limited to two Senate votes per class.

The Senate sponsors various social events throughout the year and has funding available to assist students who incur expenses related to extracurricular professional development. Fund request forms can be obtained from Senators, the Senate website, or from the Office of Student Affairs, Education 2 North, 3rd Floor.

Please visit the Student Senate's website at [cuanschutz.edu/student/campus-life/senate](https://cuanschutz.edu/student/campus-life/senate) (<https://www.cuanschutz.edu/student/campus-life/senate/>).

## Programs Listed by Degree

### CU Anschutz Programs by Degree Type Bachelor of Science (BS)

- Nursing (BS) (p. 82)

### Certificates

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## Anesthesiology (ANES)

### ANES 6038 - Clinical Anesthesiology IV (5.5 Credits)

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: GRD

Typically Offered: Fall.

### ANES 8000 - Clinical Anesthesiology (4-8 Credits)

4 wks. Students will work one-on-one with anesthesia faculty and residents to gain further practical experience in all aspects of peri-operative care; improving skills gained in the third year and developing a deeper understanding of the breadth of anesthetic practice.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

### ANES 8001 - Surgery Intensive Care AI (8 Credits)

The goal is to prepare MSIV's for internship by having them manage 'their' patients, present on multidisciplinary rounds, call consults, assist/performing procedures, discuss clinical topics & receive didactics. Honors requires clinical excellence and a written paper.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

### ANES 8002 - Anesthesia Subspecialties (4-8 Credits)

4 wks. Max: 4. Course exposes students to subspecialty areas in Anesthesiology. Students will attain additional experience in selected areas of anesthetic practice. Options include Acute and Chronic Pain, L & D, Cardiothoracics, Neurosurgery, Transplants and Pre-Anesthesia Testing. Prereq: ANES 8000.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

### ANES 8100 - ANES Elective Away (8 Credits)

This Anesthesiology elective will be held at a site in Colorado, another state or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

### ANES 8600 - Research in Anesthesiology (4-16 Credits)

2-8 wks. Prereq: Special permission and individual arrangements required in advance. The student must receive prior approval from the Associate Dean for Student Affairs. This course allows students to complete a research project in Anesthesiology.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Spring.

### ANES 8630 - ANES Research Elective Away (4-16 Credits)

This Anesthesiology research elective will be held at a site in Colorado or another state. Course is only offered 2, 4 or 8 weeks

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Anesthesiology - MS Program (ANMS)

### ANMS 5000 - Orientation to Anesthesia (1 Credit)

Overview of basics of anesthesia to familiarize the student to basic competencies prior to their first clinical day. Topics covered include: medical terminology, pharmacology, anesthesia machine, basic monitoring, anesthesia care plans, drug dosing and calculations. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Fall.

### ANMS 5001 - Introduction to Clinical Anesthesia (2 Credits)

Introduction to induction, maintenance, and emergence from anesthesia, history and types of anesthesia, universal precautions, infection control, OR layout, sterile fields and techniques, patient interaction, starting intravenous catheters and arterial cannulation, obtaining arterial blood samples, and applying ASA-standard monitors. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

### ANMS 5002 - Perioperative Medicine (2 Credits)

A course on preoperative evaluation of the patient based on patient and surgery risk factors. Small group application of patient history and physical taking will also be utilized to allow students to apply concepts learned in class. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

### ANMS 5005 - Principles of Airway Management (2 Credits)

Structure, function, pathophysiology, disease and management of the human airway. Basic and advanced principles of airway management, elective and emergent will be covered, including equipment and techniques. Examination, recognition, techniques and management involved in pediatric /adult difficult airways. Includes lab. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

### ANMS 5006 - Simulation and Skills Laboratory I (1 Credit)

Exploration of pulse oximetry, capnography, blood pressure monitoring systems, anesthesia delivery systems, breathing circuits, fresh gas flow effect, theory of dilutional methods of cardiac output monitoring, and relations between mean circulatory filling pressures and central venous pressure using anesthesia simulator. Requisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 5007 - Fundamentals of Anatomy & Physiology for Anesthetists (4 Credits)**

Gross structures of the human body will be covered while integrating topographic and radiographic anatomy to stress the application and importance of clinical anatomy. This course will also develop the knowledge of the human anatomy necessary for the practice of anesthesiology. Requisite: Must be admitted to MMS Program  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**ANMS 5008 - Clinical Anesthesiology I (5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**ANMS 5009 - Anesthesia Monitoring and Delivery Systems (4 Credits)**

Students will learn about basic monitors related to the practice of anesthesia, including ECG, NIBP, SpO<sub>2</sub>, respiratory gas analysis, temperature monitoring and other standard monitors. Students will be fluent in the interpretation of data from these basic monitors. They will also learn about anesthesia delivery systems including principles of ventilator function, breathing circuit configurations, and safety features of the operative setting including scavenging systems, machine checkout, and line isolation monitors.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**ANMS 5011 - Anesthesia Principles and Practice I (2 Credits)**

Principles involved in the formulation of anesthetic plans based upon data obtained during the preoperative evaluation, including the formulation and practices of different anesthetic plans and techniques as related to specific surgical procedures and pathophysiology. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**ANMS 5013 - Patient Monitoring II (2 Credits)**

More advanced monitoring including, BIS, SvO<sub>2</sub>, arterial and central pressure monitoring, basics of ultrasound, advanced ECG and ST analysis. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**ANMS 5016 - Simulation and Skills Laboratory II (1 Credit)**

Application of patient monitoring, clinical anesthesia practice and use of a high fidelity patient simulation environment will be covered. Students will utilize critical thinking skills to fully integrate didactic knowledge in patient care situations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**ANMS 5018 - Clinical Anesthesiology II (5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**ANMS 5021 - Anesthesia Principles and Practice II (2 Credits)**

Practical principles, application, and interpretation of various monitoring modalities including ECG, invasive and non-invasive blood pressure, oximetry, cardiac output, respiratory gas analysis, respiration, and instrumentation as they pertain to anesthesia practice. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**ANMS 5026 - Simulation and Skills Laboratory III (1 Credit)**

Application of patient monitoring, clinical anesthesia practice and use of a high fidelity patient simulation environment will be covered. Students will utilize critical thinking skills to fully integrate didactic knowledge in patient care situations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**ANMS 5028 - Clinical Anesthesiology III (7.5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia will be gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Summer.

**ANMS 5100 - Cardiovascular Physiology (2 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**ANMS 5200 - Pharmacology I (2 Credits)**

General pharmacologic concept, membrane receptor, transport, biotransformation, pharmacokinetics and pharmacodynamics will be covered. Prerequisite: Must be admitted to MMS Program. Department Consent Required.  
Grading Basis: Letter Grade  
Typically Offered: Spring.



**ANMS 5210 - Pharmacology II (2 Credits)**

Covers drugs that include inhaled anesthetics, opioids, barbiturates, benzodiazepines, anticholinesterases and anticholinergics, neuromuscular blockers, adrenergic agonists and antagonists, non-steroidal anti-inflammatory drugs, antiarrhythmics, calcium channel blockers, diuretics, anticoagulants, antihistamines, and antimicrobials. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5300 - Applied Neurophysiology (2 Credits)**

Basic science instruction utilizing systems based approach on human physiology. Requisite: Must be admitted to MSA Program

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 5400 - Respiratory Physiology (2 Credits)**

Physiology and pathophysiology of disease associated with the pulmonary system. Specific instruction on common disease states, restrictive and obstructive pulmonary disorders, mechanical ventilation, arterial blood gas analysis and how these concepts apply to patient under anesthesia care will be covered. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 5500 - Liver, Endocrine, and Renal Physiology (2 Credits)**

Physiology and pathophysiology of disease associated with the renal system. This includes specific instruction on common disease states, pre renal, intra renal and post renal failure. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 5501 - Anesthesia and Co-Existing Diseases I (2 Credits)**

This course focuses on the anesthetic considerations that must be accounted for in patients with co-existing diseases due to physiological changes. Disease states include substance abuse, obesity, obstructive sleep apnea, asthma, COPD, etc. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6002 - Wellness and Professionalism (1 Credit)**

This is a one credit hour course. Class time will be alternated weekly between Wellness and Professionalism. The Wellness portion is designed to provide anesthesia students with the tools necessary to navigate the demanding nature of an intense medical graduate program. The professionalism portion is designed to provide anesthesiologist assistant students with the information necessary to develop as professionals as well as high performing anesthesiologist assistant students. Prerequisite: Must be admitted to MMS Program. Department consent required.

Grading Basis: Pass/Fail Only

Typically Offered: Fall.

**ANMS 6007 - Applied Clinical Anatomy & Physiology for Anesthetists (2 Credits)**

Gross structures of the human body will be covered while integrating topographic and radiographic anatomy to stress the application and importance of clinical anatomy. This course will also develop the knowledge of the human anatomy necessary for the practice of anesthesiology. Requisite: Must be admitted to MS-Anesthesiology Program

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6031 - Anesthesia Principles and Practice III (2 Credits)**

This is a course on improving system-based learning and practice.

Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6038 - Clinical Anesthesiology IV (7.5 Credits)**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Prerequisite: Must be admitted to MMS Program. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6048 - Clinical Anesthesiology V (10 Credits)**

Clinical experience in required rotations through anesthesia subspecialty areas. Two-week and four-week interval rotations assigned, and will require call during some nights and weekends. Clinical practice is gained through one-on-one supervised instruction in operating room and other ancillary anesthetizing locations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6058 - Clinical Anesthesiology VI (10 Credits)**

Clinical experience in required rotations through subspecialty anesthesia areas. Rotations assigned in two-week and four-week intervals, and will require call during some nights and weekends. Clinical practice gained through one-on-one supervised instruction in operating room and other ancillary anesthetizing locations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6068 - Clinical Anesthesiology VII (10 Credits)**

Clinical experience in required rotations through anesthesia subspecialty areas. Rotations assigned in two-week and four-week intervals, and require call during some nights and weekends. Clinical practice gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6110 - Hepatic and Maternal-Fetal Physiology (2 Credits)**

Pathophysiology in a systems approach: cardiovascular, emphasizing hemodynamics, Starling forces, pulmonary responses, renal hemodynamics, temperature regulation, blood gases/pH, and maternal and fetal physiology. Emphasizes systems which affect evaluation and planning for anesthesia and systems affected by anesthesia administration. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6201 - Senior Project I (1 Credit)**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6212 - Senior Project II (1 Credit)**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6220 - Pharmacology III (2 Credits)**

This is a continuation of anesthesia specific pharmacology. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6221 - Senior Project III (1 Credit)**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6301 - Senior Seminar I (2 Credits)**

Each student will be required to research, prepare, and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6311 - Senior Seminar II (2 Credits)**

Each student will be required to research, prepare and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6321 - Senior Seminar III (2 Credits)**

Each student will be required to research, prepare and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Prerequisite: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6511 - Anesthesia and Co-Existing Diseases II (2 Credits)**

Continuation of Anesthesia and Co-Existing Diseases I. Focuses on anesthetic considerations that must be accounted for in patients with co-existing diseases due to physiological changes. Disease states include ischemic heart disease, valvular heart disease, systemic hypertension, pulmonary hypertension, coagulation disorders, etc. Prerequisites: Must be admitted to MMS Program. Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6701 - Anesthesia Non-Technical Skills & Wellness I (1 Credit)**

(ANTS) will examine and develop an understanding of medical errors, situational awareness, decision making, leadership, management of stress and fatigue. In addition this course will cover pedagogical principles in medical education and professionalism. All of which are integral in developing well-rounded and adaptable clinicians. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6711 - Anesthesia Non-Technical Skills & Wellness II (1 Credit)**

(ANTS) will examine and develop an understanding of medical errors, situational awareness, decision making, leadership, management of stress and fatigue. In addition this course will cover pedagogical principles in medical education and professionalism, all of which are integral in developing well-rounded and adaptable clinicians. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6801 - MSA-1 Seminar 1 (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANMS 6811 - MSA-1 Seminar II (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANMS 6821 - MSA-1 Seminar III (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar.

Grading Basis: Letter Grade

Typically Offered: Summer.

**ANMS 6831 - MSA-1 Seminar IV (1 Credit)**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program

Grading Basis: Letter Grade

Typically Offered: Fall.

## Animal Sciences-CSU (ANEQ)

### ANEQ 5670 - HAACP Meat Safety (2 Credits)

Control of health problems in meat products through hazard analysis critical control point (HAACP) and total quality management (TQM) practices. Prereq: ANEQ 460.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

### ANEQ 6760 - Molecular Approach to Food Safety (3 Credits)

Molecular subtyping, tracking, and control; molecular ecology and evolution of food-borne pathogens; molecular pathogenesis of food-borne diseases. Prereq: MIP 300 and MIP 301 or MIP 334 and MIP 335.

Grading Basis: Letter Grade

Repeatable. Max Credits: 99.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

## Anthropology-CSU (ANTP)

### ANTP 5050 - Resilience, Well-Being and Social Justice (3 Credits)

This course draws on literature from anthropology, sociology, political science, economics, public health, environmental studies, human ecology, journalism, psychology, nursing, history and ethnic studies. It will also engage with the practice-based work of NGOs and governments. Requisite: 008754

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

### ANTP 5200 - Women Health & Culture (3 Credits)

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

### ANTP 5300 - Human Environ Interactions (3 Credits)

Paradigms and concept in ecological anthropology with an emphasis on adaptation and resilience.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

### ANTP 5320 - Culture of Disaster (3 Credits)

This course is designed to introduce students to the way social scientists study disaster.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

### ANTP 5380 - Food, Hunger and Culture (3 Credits)

This course will explore cultural and social understandings of food cross-culturally. These include the symbolic meanings that people attribute to food and its consumption cross-culturally, and the culturally and socially constructed understandings of the body in relation to food and diet.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

### ANTP 5400 - Medical Anthropology (3 Credits)

Cultural and biocultural approaches to health, illness, and the body; theory and application in medical anthropology. Prereq: Graduate standing.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

### ANTP 5450 - Global Mental Health - Theory and Method (4 Credits)

Cross-cultural study of mental health and healing; cultural, clinical and biological perspectives; integration of theory and method.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

### ANTP 5710 - Anthropology and Global Health (3 Credits)

Global health concerns and problems including poverty, urbanization, malnutrition, diet, war and refugees, climate and environment. Credit will only be given for one of the following courses: PSCY 5170, ANTP 5710 or CBHS 6619.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

### ANTP 6950 - Independent Study: Anthropology (1-18 Credits)

Independent Study: Anthropology. Prerequisite: Graduate Standing.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Summer.

## Applied Dentistry (Prior) (DSAD)

### DSAD 5866 - Independent Study (1-5 Credits)

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

### DSAD 6855 - Independent Study (0.1-5 Credits)

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 15.

Typically Offered: Fall.

### DSAD 6866 - Independent Study (0.1-5 Credits)

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

### DSAD 6877 - Independent Study (0.1-5 Credits)

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

### DSAD 7719 - Comprehensive Patient Care Clinic C (3 Credits)

Continuation of comprehensive patient care activities with a focus on independence, student preparedness, technical skills, patient management and professionalism.

Grading Basis: Letter Grade with IP

### DSAD 7721 - Comp Pt Care Clinic D (3 Credits)

Grading Basis: Letter Grade with IP

### DSAD 7855 - Independent Study (0.1-5 Credits)

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 15.

Typically Offered: Fall.

**DSAD 7866 - Independent Study (0.1-5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSAD 7877 - Independent Study (0.1-5 Credits)**

Independent study - assigned by course Director.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSAD 8827 - Comp Pt Care Clinic F (11 Credits)**

Grading Basis: Letter Grade with IP

**DSAD 8847 - Comprehensive Patient Care Clinic H (11 Credits)**

Continuation of advanced comprehensive patient care activities for DS 4 dental students not registered for Integrated Care Clinical Dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring, Summer.

**DSAD 8859 - Independent Study (0.1-6 Credits)**

Independent study - assigned by course Director.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSAD 8895 - Independent Study (0.1-10 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

## Basic Science (DSBS)

**DSBS 5500 - Embryology and Craniofacial Biology (0.1-5 Credits)**

Deals with the chemical basis of biological organization and function. Emphasis is given to topics most directly relevant to oral health and disease.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSBS 5502 - Microanatomy (0.1-5 Credits)**

This course will cover initially the structure and function of cells and tissues and progress to study the normal structural features of the organs of the body, as the basis for understanding pathologic conditions and disturbances of function.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSBS 5504 - Human Anatomy (0.1-10 Credits)**

This course covers the anatomy of major body systems with emphasis on head and neck structures.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSBS 5506 - Oral Histology (0.1-5 Credits)**

This course will cover the details of tooth development and the histological features of the oral tissues, to include: salivary glands, oral epithelia, oral lymphatic tissue, enamel, dentin, cementum, oral bone and the periodontal ligament. Requirement: Department Consent

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSBS 5507 - Molecular Biosciences (0.1-5 Credits)**

This course provides in-depth consideration of the biochemical, molecular biology and genetic mechanisms that control protein synthesis, gene expression and cellular function.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSBS 5508 - Physiology (0.1-5 Credits)**

Deals with fundamentals of human physiology from basic cellular processes, such as membrane transport, to the organization and control of organ systems.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSBS 5511 - Invaders and Protectors (0.1-5 Credits)**

This course covers basic principles of general and medical microbiology with emphasis on oral microorganisms while integrating the response of the immune system to fight these invaders.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSBS 5516 - Pathology (0.1-5 Credits)**

This course assists the student in learning the etiology, pathogenesis, and the changes in structure and function of specific disease entities on selected organ systems and how these changes relate to the practice of dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSBS 6600 - Fundamentals of Pharmacology (0.1-10 Credits)**

Part one of a two-course sequence. Intensive study of drugs used in dental practice with emphasis on the basic principles of drug action. Lectures and clinical correlations are employed.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSBS 6603 - Applied Clinical Pharmacology (0.5-10 Credits)**

Part two of a two-course sequence. Intensive study of drugs used in dental practice with emphasis on the basic principles of drug action. Lectures and clinical correlations are employed.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSBS 6604 - Advanced Head and Neck Anatomy (0.1-5 Credits)**

This course will review concepts initially introduced in DSBS 5504 Human Anatomy (DS1 Fall) and provide more detail through dissections of cadavers with a focus on the anatomy of the head and neck.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

## Biomedical Sciences and Biotechnology (BSBT)

**BSBT 6060 - Special Topics in Biomedical Science & Biotech (1-3 Credits)**

Special topics of interest to graduate students in the biomedical sciences and biotechnology fields.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

Typically Offered: Fall, Spring, Summer.

**BSBT 6061 - Project Management (2 Credits)**

Provides training in initiating, executing & closing a project, including the management of scope, time, cost, human resources, communication, risk and more. Highly interactive intensive course prepares students for Certified Project Management exam (internationally recognized certification). Taught by Project Management Professional.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.



**BSBT 6062 - Principles & Strategies of Effective Teaching (1 Credit)**

Introduces students to research-based, student-centered pedagogies and instructional design techniques. Encourages students to view teaching as an intellectual endeavor. Learn about useful resources for future teaching and formally document pedagogical knowledge and skills for employability. Intensive 1-credit course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6063 - Speaking & Presenting for Scientists & Educators (1 Credit)**

Science Communication in the form of speeches and presentations is essential to the research endeavor. The course will increase your effectiveness to deliver scientific, medical, or educational presentations in an audience-centered and impactful way; to respond to audience questions; and to facilitate audience engagement & discussion.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6064 - Scientific Writing (1 Credit)**

Taught by a biomedical researcher and a professional writing instructor, this 15-hour (3-week) course focuses on developing a framework for successful scientific writing practices, including how to effectively structure arguments, how to write grant proposals and more.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6065 - Case Studies in Responsible Conduct of Research (1 Credit)**

Anyone conducting research using federal funding must study RCR. You'll learn expectations and regulations that permeate science. You'll understand consequences of violations to individuals and society. We'll explore misconduct through interactive video, written and video case studies, and other engaging activities.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6066 - Independent Study (1-3 Credits)**

The Course BSBT 6066, Independent Study, with allow graduate students to explore independently new avenues and opportunities that complement their education and training in a way that is otherwise not offered in required or elective courses of the BSBT Program. Enrollment with permission only. Requisite: With permission only

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring.

**BSBT 6067 - Statistics for Biomedical Sciences (2 Credits)**

Learn how and when to apply statistical procedures to answer scientific questions relevant to biomedicine, and how to critically assess statistical data for validity.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**BSBT 6068 - Laboratory Research in Structural Biology (1-6 Credits)**

The Course BSBT 6068, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on structural biology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

Typically Offered: Fall, Spring, Summer.

**BSBT 6069 - Laboratory Research in Immunology and Microbiology (1-6 Credits)**

The Course BSBT 6069, Laboratory Research, with allow graduate students to engage in laboratory research training in the biomedical sciences with focus on immunology and microbiology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**BSBT 6070 - Mini-Research Rotations (1-3 Credits)**

The Course BSBT 6070, Mini-Research Rotations, with allow graduate students to learn in three different laboratories about research in immunology and microbiology.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring.

**BSBT 6071 - Introduction to R Programming (1 Credit)**

Introduction to the statistical programming language R geared primarily to biomedical science students with little to no previous programming experience. Basic features of R as a programming language and as scientific computing platform. Basics of data cleaning, visualization, and analysis.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6072 - Foundations in Biochemistry (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in biochemistry including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6073 - Foundations in Molecular Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in molecular biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6074 - Foundations in Cell Biology (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in cell biology including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6075 - Foundations in Genetics (1.5 Credits)**

This short course provides a condensed and fast-paced overview of the fundamentals in genetics including research strategies and techniques. The course aims to enhance the students' ability to engage in critical scientific reasoning and problem-solving and to prepare students for the scientific analyses and discussions.

Grading Basis: Letter Grade

Typically Offered: Fall.



**BSBT 6076 - Research Explorations (1 Credit)**

This course allows for exploration of SBB research labs in a “mini-rotation” format, through meeting faculty, reading literature and participating in lab group meetings and research in order to choose a research lab and prepare a short research proposal.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6078 - Seminar in Immunology and Microbiology (1 Credit)**

This course provides students in the Bioinformatics in Immunology/Microbiology program an integration of didactic knowledge with research approaches to outstanding questions in the field. Students will attend department weekly seminar followed by structured discussion.

Prerequisites - IDPT 7810 & IMMU 7630

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**BSBT 6110 - Introduction to Biocomputing (3 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic data set. Prerequisite: Undergraduate degree in science, technology, business, engineering or math.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**BSBT 6111 - Introduction to Biomedical Data Practices (2 Credits)**

This course provides students with advance knowledge and topics in every aspects of data science.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**BSBT 6112 - Introduction to Biocomputing (2 Credits)**

This course provides students with hands on experience in basic computation, database, and programming skills set as a pre-requisite for a higher level data analysis course. The students will use example in the context of biomedical and genomic dataset. Requisite: Must be simultaneously enrolled in BSBT 6113.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6113 - Data Science with R (1 Credit)**

In this 4 weeks semi-independent study course, you will learn how to use the “tidyverse” programming paradigm to perform data science operation using the programming language R. At the end of the course, you will learn the basic understanding of the fundamental elements of data science, including; wrangling, exploration, visualization and modeling.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BSBT 6310 - Practical Clinical Research Informatics (3 Credits)**

This course provides students with hands on experience in clinical research informatics involving secondary use of electronic health record (EHR) data, clinical informatics databases, and basic clinical data science as preparation for more advanced informatics or data science coursework. Requisite: 008754 A-GRAD

Grading Basis: Letter Grade

Typically Offered: Spring.

**BSBT 6801 - Biomedical Entrepreneurship (3 Credits)**

The course addresses the essential elements of bioscience and health innovation and entrepreneurship. Prerequisites: An undergraduate degree in science, technology, business, engineering or math. Cross-listed with ENTP 6801

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**BSBT 6802 - Reg Env of Life Science Innovation - Drug Discovery (1.5 Credits)**

This course is designed to familiarize biomedical scientists and those interested in the business of science with the fundamentals of U.S. and international regulatory affairs regarding drug development. Focus is the development of products, such as drugs, devices, diagnostic tests, and health information software, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6803 - Reg Env of Live Science Innovation - Medical Devices (1.5 Credits)**

This course is designed to familiarize biomedical scientists, those interested in the business of science with the fundamentals of U.S. and international regulatory affairs for biomedical and healthcare products. Focus is the development of products, such as Medical, to receive U.S. and international regulatory clearance or approval for commercialization.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**BSBT 6939 - Internship - Technology and Innovation (3-6 Credits)**

The internship provides hands-on learning opportunities for graduate students in institutions related to technology/biotechnology, computer science, engineering, innovation and entrepreneurship. Requisite: (Formerly IDPT 6939) Enrollment with permission only, contact inge.wefes@ucdenver.edu. Instructor Consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**BSBT 6950 - Laboratory Thesis Research (3-6 Credits)**

Laboratory Thesis Research with allow graduate students to engage in laboratory research training in the biomedical science.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

## Biostatistics (BIOS)

**BIOS 6310 - Practical Clinical Research Informatics (3 Credits)**

This course provides students with hands on experience in clinical research informatics involving secondary use of electronic health record (EHR) data, clinical informatics databases, and basic clinical data science as preparation for more advanced informatics or data science coursework.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6420 - Data Science and Analytics of Continuous Clinical Data (3 Credits)**

The central focus of this course is on the generation, modeling, and analysis of data collected in a clinical or biomedical context, with an emphasis on temporal analysis. Analysis techniques will be anchored to solving real-world clinical and biomedical problems.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BIOS 6601 - Applied Biostatistics I (3 Credits)**

Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 6602 - Applied Biostatistics II (3 Credits)**

A continuation of BIOS 6601 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively. Multiple optional lab sessions offered.

Prerequisite: BIOS 6601

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6603 - Statistical Computing - SAS (1 Credit)**

This course will emphasize statistical analysis and data interpretation through use of the SAS statistical computing package. Instruction will be provided through laboratory exercises and interactive demonstrations

Prereq/Coreq: BIOS 6601 Restriction: Credit may be counted toward a CSPH degree for only one of BIOS 6603, 6604 or 6605

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 6606 - Statistics for the Basic Sciences (3 Credits)**

This course is designed for those wishing to obtain a basic understanding of statistics and its application in biological research. Students will develop statistical literacy and an ability to perform basic statistical analyses, basic graphical statistics, data summarizations, and estimation and inference using statistical software. Restrictions:

Enrollment in UCD-AMC graduate program or permission of the instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6611 - Biostatistical Methods I (3 Credits)**

This first course in applied statistics covers basic descriptive methods and probability; parametric and nonparametric inference for the one- and two-sample location problem; ANOVA, ANCOVA, and multiple linear regression. Matrix notation, R, and SAS are used. Prerequisite: differential calculus or permission of instructor

Grading Basis: Letter Grade

A-PUBH BIOS

Typically Offered: Fall.

**BIOS 6612 - Biostatistical Methods II (3 Credits)**

This is a continuation of BIOS 6611 covering univariate linear modeling and emphasizing multiple regression and analysis of variance. Logistic regression and methods for correlated data are also covered. Matrix algebra and the statistical package SAS will be used. Prereq: BIOS 6611.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6621 - Statistical Consulting I (1 Credit)**

Students will gain experience with statistical consulting and common statistical problems and techniques encountered in consulting through a combination of real examples and consultations with investigators.

Emphasis will be on methods for effective consulting and communication with investigators. Corequisites: BIOS 6611 and consent of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6622 - Statistical Consulting II (1 Credit)**

Students will gain experience with statistical consulting and common statistical problems and techniques encountered in consulting through a combination of real examples and consultations with investigators.

Emphasis will be on analytic methods, and on interpretation and presentation of analyses. Prerequisites: Bios 6611. Corequisites:

BIOS 6612 and consent of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6623 - Advanced Data Analysis (3 Credits)**

This course teaches the students how to be effective collaborators. Students will learn to modify project hypotheses to be statistical

hypotheses. The students will identify and perform the appropriate data analyses and communicate their analyses both verbally and in writing.

prerequisite: BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612 or

permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6624 - Advanced Statistical Methods and Analysis (3 Credits)**

This second-year graduate level biostatistics/data science course develops advanced data analysis and collaboration skills. The course is based on five projects using methodologies such as Bayesian analysis, simulation, correlated data, missing data, and study design for grant development. Pre-requisite: BIOS 6611, BIOS 6612, BIOS 6631, BIOS 6632 or permission of the instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6628 - Latent Variable Methods (3 Credits)**

Covers statistical approaches commonly used in behavioral sciences research, including reliability analysis, exploratory and confirmatory factor analysis, path analysis, structural equation modeling, and advance modeling procedures. Students will analyze data using statistical

software, interpret results, and write summaries of findings. Prerequisite:

BIOS 6601, BIOS 6602 or equivalent. Cross-listed: CBHS 7010

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6629 - Applied Survival and Longitudinal Data Analysis (3 Credits)**  
This course will focus on the application of regression modeling to time-to-event and longitudinal data. Descriptive and inferential methods will be developed for each type of data with an emphasis on graphical inspection at all stages of analysis. Prerequisite BIOS 6601 and 6602 or BIOS 6611 and 6612 and permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**BIOS 6631 - Statistical Theory I (3 Credits)**

This course presents an introductory coverage of the theory of discrete and continuous random variables and applications to statistical problems. Topics include probability theory, transformations and expectations, common families of distributions, multiple random variables, and properties of a random sample. Prereq: Differential and integral calculus.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**BIOS 6632 - Statistical Theory II (3 Credits)**

This course covers theoretical and applied fundamentals of statistical inference. The course is a continuation of BIOS 6631. The primary topics include point estimation, hypothesis testing, interval estimation and asymptotic methods. Prereq: Differential and integral calculus. Prereq: BIOS 6631

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**BIOS 6640 - R for Data Science (2 Credits)**

Statistical programming in R, including data managing, vectors, matrices, frames, subscripting, loops, functions, input/output, packages, etc. Concepts and methods for reproducible research will be covered as well as computationally intensive statistical methods. These methods are used to analyze data and present results.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring.

**BIOS 6641 - Causal Inference (3 Credits)**

Basic knowledge of and analytic skills in causal inference. Topics include potential outcomes framework for causal inference; experimental and observational studies; identification assumptions for causal parameters; instrumental variable method; regression discontinuity design; propensity score based methods and causal mediation analysis. Prerequisite:

BIOS 6611 or BIOS 6602 or permission of instructor; knowledge of R  
Restriction: Offered in variable terms and years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring.

**BIOS 6642 - Introduction to Python Programming (3 Credits)**

This first course in programming using Python covers basic concepts such as variables, data types, iteration, flow of control, input/output, and functions and advanced concepts such as object oriented programming. Statistics related examples, homework and projects may be used.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**BIOS 6643 - Analysis of Longitudinal Data (3 Credits)**

Theory and application of models appropriate for clustered and longitudinal data are studied. Models for different types of outcome variables (e.g., normal, Poisson, binomial) are covered, with an emphasis on linear mixed models for normal outcomes. Prerequisites: BIOS 6632 and BIOS 6612 or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**BIOS 6644 - Practical Data Wrangling (2 Credits)**

Data Wrangling is the process of getting data into a format which is useful for science. This course will provide students with a diverse set of tools, strategies and practices which can dramatically reduce the pain and wasted time often associated with wrangling and how to leverage the innumerable free resources available to everyone.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**BIOS 6645 - Predictive Analytics (3 Credits)**

This course will focus on the development, evaluation and validation of prediction models using observational studies and data, with an emphasis on both model-based and algorithmic approaches. In addition to regular assignments, students will apply their knowledge by developing, evaluating and validating models in three projects.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**BIOS 6646 - Survival Analysis (3 Credits)**

This course covers the analysis of time-to-event data with applications to biology, medicine, and public health. Nonparametric methods for group comparisons and semi-parametric regression models will be emphasized. Parametric methods and distribution theory for survival analysis will also be included. Prereq: BIOS 6611 & BIOS 6631 or instructor permission  
Coreq: BIOS 6612 & BIOS 6632 or instructor permission.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**BIOS 6648 - Design and Conduct of Clinical Research (3 Credits)**

Design and conduct of clinical research studies. Intended for non-biostatistics students. Topics include: specifying the research question, study endpoints, study populations, study interventions, sample size evaluation, and choice of comparison groups. Common study designs and methods for study conduct are described. Prerequisite: BIOS 6601 or BIOS 6611 or consent of instructor. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**BIOS 6649 - Clinical Trials: Statistical Design and Monitoring (3 Credits)**

Statistical and scientific design of clinical trials. Intended for biostatistics graduate students. Topics include: scientific and statistical aspects of the research question, endpoints, treatments, sample size evaluation. A wide range of trial designs including group sequential and adaptive trial designs are covered. Pre/Corequisite: BIOS 6612 or instructor permission. Offered spring semester odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**BIOS 6650 - MPH Research Paper (1-2 Credits)**

Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data. Permission of Department required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 6651 - BIOS MS Research Paper (1-6 Credits)**

Masters research paper in Biostatistics is completed under this course.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**BIOS 6655 - Statistical Methods for Genetic Association Studies (3 Credits)**

This course is designed to give an introduction to statistical methods in genetic association studies. Topics include quantitative and population genetic concepts relevant to genetic association studies, design strategies, and analysis methods for case-control and family data. Pre-Requisite: BIOS 6611, BIOS 6612 (can be co-requisite) or equivalent graduate level (bio)statistics course with instructor consent. Proficiency in coding in statistical software R.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6660 - Analysis of Genomic Data using R and Bioconductor (3 Credits)**

This course provides students with hands on experience in solving real life biological problems using the statistical software R and Bioconductor. Students will work and communicate with participating researchers and clinicians on their case studies of genomics data. Pre/Corequisite BIOS 6602 or 6612, or consent of instructor. Offered variable years and terms. Crosslisted with CPBS 7660.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6670 - Special Topics: Biostatistics (1-3 Credits)**

Special interest areas of current biostatistics research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check with CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 99.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 6680 - Data Management Using SAS (3 Credits)**

Students will learn how to use SAS software for data management to prepare data for analyses. Main topics include importing and exporting data, variable and dataset manipulations. Introductions to producing reports, basic statistics, figures and SAS macros are also covered.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 6681 - Structured Query Language Using SAS PROC SQL (1 Credit)**

This course will cover how to use SQL to query data, combine data vertically using set operators and horizontally using joins. Additional topics include incorporating subqueries and how to create and manage tables, views and indexes.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**BIOS 6682 - Fundamentals of Python Programming (1 Credit)**

This course provides an introduction to Python programming language. Students are introduced to core programming concepts such as variables, types, data structures, conditionals, loops, and functions. This hands-on course includes an overview of the several tools available for writing and running Python.

Grading Basis: Letter Grade

Typically Offered: Fall.

**BIOS 6685 - Introduction to Public Health Informatics (3 Credits)**

Survey course explores public health informatics topics such as current public health informatics initiatives, data sources, public health information systems, standards, health information exchange, system development/procurement, threats to information security and privacy, and decision support in the public health context.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 6840 - Independent Study for MPH in Biostatistics (1-3 Credits)**

Faculty directed independent study for MPH students in topics related to biostatistics. Restriction: Open only to MPH students. Department Consent Required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University; Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

**BIOS 6841 - Independent Study for MS in Biostatistics (1-4 Credits)**

Resources of the program are available to those MS students who elect to carry out research in chosen topics related to biostatistics. A faculty member will provide guidance throughout the project. Restriction: Open only to MS students or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 6950 - Masters Thesis: Biostatistics (1-6 Credits)**

Biostatistics Master thesis work is completed under this course.

Grading Basis: Letter Grade with IP

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**BIOS 6990 - MPH Capstone Preparation - BIOS (1 Credit)**

MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

Grading Basis: Pass/Fail with IP

This course is restricted to students with a MPhD-MPH plan of study only.

Typically Offered: Fall, Spring, Summer.



**BIOS 7645 - PhD Predictive Analytics (3 Credits)**

This course will focus on the development, evaluation and validation of prediction models using observational studies and data, with an emphasis on both model-based and algorithmic approaches. Students will develop, evaluate and validate models in 3 projects. Students should be very familiar with programming in R. Prerequisites: BIOS 6611, BIOS 6612, BIOS 6623, BIOS 6631, BIOS 6632

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 7659 - Statistical Methods in Genomics (3 Credits)**

Analysis of genomic data is an integral component of biomedical research. This course will give an introduction to problems in genomics and review both the pioneering and more recent statistical methods developed for analyzing expression data and molecular sequences. BIOS 6611/6612 or BIOS 6631/6632 or permission of instructor. Offered variable term and year.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**BIOS 7670 - Advanced Special Topics - Biostatistics (1-3 Credits)**

Advanced special interest areas of current biostatistics research and practice are presented. The course format is lecture and discussion or seminar. Check the CSPH Website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 7712 - Statistical Methods for Correlated Data (1 Credit)**

This course will cover statistical models and methods for serially correlated data, including autoregressive models, Markov models, and Markov chain Monte Carlo methods. Prereq: BIOS 6643

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 7713 - Statistical Methods for Missing Data (1-2 Credits)**

This course covers methodological research being carried out for longitudinal studies with missing data. Topics may include missing data mechanisms, non-ignorable missing data, multiple imputation, mixture models and sample size determinations. 1 credit or 2 credit course versions offered in variable years. Prereq: BIOS 6643

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 7714 - Advanced Statistical Computing (3 Credits)**

This course covers the theory & implementation of estimation algorithms used in statistical analysis. Possible topics: numerical analysis (quadrature), optimization (Newton-Raphson, EM algorithm, stochastic optimization), and simulation (pseudo-random numbers, rejection sampling, Markov chain methods). Prerequisites: BIOS 6611, BIOS 6612, BIOS 6631, BIOS 6632, or permission of instructor. This course is intended for students in the PHD/Biostatistics program.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**BIOS 7715 - Stochastic Modeling (2 Credits)**

This course covers theory, application and software for stochastic models commonly used in health sciences, including time to event, recurrent event, multi-type recurrent event, and multi-state models. The intended audience is Biostatistics PhD students. Prerequisite: BIOS 6643 and BIOS 6632 or consent of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 7717 - Bayesian Biostatistical Methods (3 Credits)**

This course will introduce students to modern Bayesian statistical modeling and inference. Topics include a comparison of frequentist and Bayesian approaches, Markov Chain Monte Carlo (MCMC) methods for simulating posterior distributions, inference for regression, hierarchical models and mixed models. Prerequisites: BIOS 6612 and BIOS 6632 or permission of instructor. Offered variable term and year. Instructor consent required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**BIOS 7718 - Introduction to Biomedical Image Analysis (3 Credits)**

This course will provide students with the computational skills to tackle a biomedical image analysis problem. Students will also improve their Python coding skills, present scientific papers and participate in scientific discussions. Prerequisite: BIOS 6611 or BIOS 6612, linear algebra, experience with Python/Matlab or permission of instructor. Restriction: Offered in variable terms and years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**BIOS 7719 - Information Visualization (3 Credits)**

Information visualization studies interactive visualization techniques for analyzing abstract data. This course introduces design, development, and validation approaches with applications in various biological and biomedical domains. Cross-listed with CPBS 7719.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BIOS 7720 - Applied Functional Data Analysis (2 Credits)**

An introduction to key concepts and methods in functional data analysis and their applications in public health. Topics include penalized regression, smoothing and smoothing parameter selection, generalized additive models, sparse functional data, functional regression and functional mixed effects models. BIOS 6612, BIOS 6632 and programming skills in R or permission of instructor. A background in longitudinal data analysis (BIOS 6643) is strongly recommended but not required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**BIOS 7721 - Joint Modeling of Longitudinal and Survival Data (1 Credit)**

An introduction to joint modeling of longitudinal and survival data and its application in health research. Topics include linear mixed effects models, survival analysis, random effects joint model, and possibly dynamic prediction. BIOS 6643 Longitudinal Data or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Spring.



**BIOS 7731 - Advanced Mathematical Statistics I (3 Credits)**

This course will provide the framework for understanding the formal concepts, models and assumptions in statistical theory. Topics include random variables, parameter estimation, measures of performance, hypothesis testing and asymptotic approximations. Prerequisite: BIOS 6632 or equivalent. This course is intended for students in the Biostatistics PhD program. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**BIOS 7732 - Theory/Algorithms Data Science (3 Credits)**

Interplay of algorithms, their implication and theoretical understanding for certain algorithms and the basics of optimization theory. Implement/prototype algorithms in optimization theory and statistical computing. Learning to read the literature on data science and machine learning and comprehending the algorithmic techniques utilized. Pre-requisite: BIOS 6632 and programming knowledge or equivalent, or permission of Instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**BIOS 7749 - Advanced Methods in the Design of Clinical Trials (3 Credits)**

Scientific and statistical design of clinical trials including the scientific parameterization of outcome space; frequentist and Bayesian standards for scientific evidence and statistical inference; and fixed-sample, group sequential and adaptive trial designs. The course will primarily use R. Prerequisite: BIOS 6624 or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**BIOS 7899 - Independent Study for PhD - Biostatistics (1-4 Credits)**

This course is for the PhD student who wishes to pursue one or more topics in depth. These topics may involved biostatistical material, or biological material necessary to the student's biostatistical work. Supervision by a full-time faculty member is necessary. . Prereq: PhD student or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**BIOS 8990 - Doctoral Thesis (1-10 Credits)**

PhD Dissertation work is completed under this course.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Cancer Biology (CANB)

**CANB 7600 - Molecular Mechanisms of Cancer (4 Credits)**

This is an advanced course that will focus on mechanisms of cancer initiation and progression. The course will include didactic presentations, primary literature analysis and workshops. The course is open to all graduate students but requires some prior knowledge of Cancer Biology.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CANB 7602 - Special Topics in Cancer Biology (1 Credit)**

Special topics of particular interest to graduate students in the Cancer Biology program. Registration requires department approval. Max hours: 4 credits/4 topics. Requisite: 008754

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**CANB 7610 - Pathobiology of Cancer Mini-Course (1 Credit)**

Provide understanding of clinical issues associated with human cancer. Contains didactic and lab components. The latter will focus on pathology of human tumors at macroscopic/microscopic levels. Students will gain understanding of cancer diagnosis/epidemiology/treatment through student of specific tumor types. Prerequisite: Students are required to take this course twice during their time in the CANB program. IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**CANB 7613 - Research Seminars and Journal Club (1 Credit)**

Current research topics in experimental pathology, virology, and tumor biology. Graduate students and faculty presentations.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7620 - Histophysiology (3 Credits)**

Discussions of cell interactions, tissue physiology, and renewal based upon the histologic cell types and structures present. Where pertinent, pathologic alterations will be introduced to facilitate identification of the important normal functions/structures.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CANB 7640 - Bioinformatics (2 Credits)**

This course introduces basic concepts of bioinformatics needed to perform large-scale genomic data mining. A computer workshop will provide students with the relevant and minimal skills to analyze, access and visualize high-throughput data using open source programs and public databases. Prerequisites: IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809 ; Corequisite: BIOS 6606

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7650 - Research in Cancer Biology (1-10 Credits)**

Research work in cancer biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CANB 7660 - Advanced Topics: CANB (1 Credit)**

The specific topics covered in this course vary from year to year. For Fall 2011 the topic will be "Cancer cells and their environment: how the extracellular milieu influences tumor progression" offered by Dr. Schedin.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7680 - Hypothesis Development and Experimental Design (3 Credits)**

Students will discuss recent research papers and develop new hypotheses that extend the findings in the papers. Research proposals to test the hypothesis will be written and an oral defense of the proposal will be performed. Prereq: CANB 7600, IDPT 7806, IDPT 7807, IDPT 7808, IDPT 7809.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CANB 7690 - Grant Writing in Cancer Biology (1 Credit)**

This course will use didactic presentations and writing workshops to develop a fellowship grant in the NIH style. Focus will be on grantsmanship, persuasive writing and the peer review system.

This course will run consecutively with CANB7600. Corequisite with CANB 7600

Grading Basis: Letter Grade

Typically Offered: Spring.

**CANB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in cancer biology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Candidate for Degree (CAND)

**CAND 6940 - Candidate for Degree (1 Credit)**

Prereq: Consent of Instructor.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Cell Biol, Stem Cells & Development (CSDV)

**CSDV 7000 - Cells, Stem Cells, and Development: Advanced Topics Discussion (1 Credit)**

This course is a student-led paper discussion focusing on advanced topics pertaining to cell biology, stem cells, and developmental biology. Students will select, present, and discuss primary articles on diverse topics within these fields. Restriction: Students in the CSD program only, 2nd year and beyond.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CSDV 7100 - Advanced Writing Workshop (1 Credit)**

This course is a student-led writing workshop focusing on developing writing skills through submission, editing, and discussion of drafts.

Draft types will be chosen by the students enrolled and will include manuscripts, these, and documents related to career development.

Students must have completed/passed their comprehensive exam in respective program; priority to CSDV PhD students.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**CSDV 7605 - Stem Cells and Development: An Integrated Approach (3-4 Credits)**

Integrative introductory course incorporating the related fields of Cell Biology/Developmental Biology/Stem Cells. Through lectures, contemporary literature discussions, student presentations, enrollees will gain a sophisticated understanding of the biological concepts/experimental approaches underlying current understanding of cell, developmental, and stem cell biology. Pre-Requisite: IDPT 7806

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CSDV 7606 - Critical Analysis of Research in CSD (3 Credits)**

First-year students will learn to critically evaluate scientific literature in preparation for writing and critiquing research grant proposals.

Primary literature will focus on cell and developmental biology related to CSDV 7605. Each session concludes with written mini-proposals and peer critiques. For CSDV & BSP first year students. If possible, limit to CSDV-PHD and BMSC-PHD plans. Else: Prerequisite: IDPT 7806 & 7810; Corequisite: CSDV 7605

Grading Basis: Letter Grade

Typically Offered: Spring.

**CSDV 7607 - Genetics of Development, Disease, and Regeneration (2 Credits)**

Course participants will read, present and discuss scientific literature addressing topics in developmental, disease, and regenerative genetics. The course will be organized into 4 blocks, with each block focusing on one topic. Prerequisite - CSDV 7605

Grading Basis: Letter Grade

Typically Offered: Spring.

**CSDV 7650 - Research: CSDV (1-5 Credits)**

Research work in cell biology, stem cells and development. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CSDV 7670 - Advanced Topics: CSDV (2 Credits)**

Spring/Summer, 2019 Course is an introduction to concepts and practice of organ and tissue modeling using adult stem cell organoid culture systems. Lectures/article reviews will be balanced with a significant, hands-on lab component to gain experience in organoid culture techniques. Prereq: IDPT 7806, 7810

Grading Basis: Letter Grade

Repeatable. Max Credits: 7.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CSDV 7675 - Practical Teaching Experience in CSDV (1 Credit)**

Students will be paired with a CSD faculty mentor to develop a class session for IDPT 7801 courses directed by CSD faculty, CSDV 7605 or CSDV 7670 (depending on student interest and faculty availability). Each session will include a practice presentation and post-session critique. Open to CSDV students in Year 2+. Prerequisite: CSDV 7605; 2nd year+

CSDV-PhD students only

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring.

**CSDV 7676 - Practical Mentoring Experience in CSDV (1 Credit)**

This course will train students in effective mentoring skills for a research lab setting. Class meetings will be discussion-based, with topics including project design, communication, conflict resolution, creating equitable and inclusive mentoring relationships, and more.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**CSDV 7677 - Science Communication in the Time of COVID (1 Credit)**

Science communication is important for most careers in science. In this class, we will focus on communicating science to the general public through oral presentations, humor (Science Riot workshop), discussions, and written articles. During this unusual year, our outreach efforts will be focused on the Covid-19 vaccines.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**CSDV 7850 - Independent Study in Cell Biology, Stem Cells and Development (1-5 Credits)**

Independent Study is to allow students to take professional school course for credit or to gain a defined expertise with faculty mentor other than thesis advisor. Consent of faculty member offering the independent study and Program Director required. Prereq: IDPT 7806, 7807, 7808, 7809 (BIOM Science Core Courses), and CSDV 7605.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CSDV 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral Thesis work in Cell biology, Stem Cells and Development. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Clinical Science (CLSC)

**CLSC 6060 - Systems Analysis and Design (3 Credits)**

Collaborative offering with Denver Campus, emphasizing information requirements analysis, logical system specification, detailed system design. Topics include structured system development methodologies, prototyping, file design, systems architecture, systems testing, software design strategies. Students use case tool to develop system specifications.. Crosslisted: ISMG 6060.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6080 - Database Management Systems (3 Credits)**

Offered as a collaborative offering with UCD, this course focuses on the development and management of database systems to support business operations. Important subjects include semantic data modeling, normalization, SQL, fourth generation languages, and client-server database applications. Crosslisted: ISMG 6080.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6210 - Research Seminars in Clinical Science (1 Credit)**

This course provides an overview of the types of clinical translational studies being conducted by senior CLSC doctoral students. The interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages of training, mentors and faculty.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6211 - Immersion in Community Engagement (3 Credits)**

The course focuses on community-based participatory research, community engagement and understanding health disparities through a community immersion experience. Restrictions: Students need to contact the CLSC program prior to registering.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CLSC 6260 - Conducting Clinical Trials for Investigators (2 Credits)**

Course is for investigators conducting clinical trials. Course covers good clinical practices/regulations that surround setting up and running clinical trials. Clinical studies and popular press articles highlighting what can go wrong in clinical trials will be reviewed and discussed.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**CLSC 6270 - Critical Appraisal Seminars in Clinical Science (1 Credit)**

This course provides an overview of the approaches for critically appraising common study designs published in the clinical and translational sciences literature, as well as other sources of information.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 6300 - Scientific Grant Review Process: CCTSI Proposals MS (1 Credit)**

Students will understand and participate in the process of scientific review of human subject research protocols submitted to the University of Colorado Denver Clinical Translational Research Centers at University Hospital and The Children's Hospital. Prereq: BIOS 6601, BIOS 6602 (or BIOS 6611, BIOS 6612) & CLSC 7500.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CLSC 6550 - Applications of Biostatistics to Clinical Research Questions (1 Credit)**

Introduction to allow clinician-scientists to be critical consumers of medical literature by improving their ability to discuss statistical issues about their own research and research of others. Familiarity will be gained with commonly used statistical methods and statistical terms.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CLSC 6560 - Designs and Mixed Methods in Implementation Research (2 Credits)**

This course provides an in-depth examination of study designs, comparative effectiveness research, and qualitative, quantitative and mixed methods approaches to dissemination and implementation research. The focus is application to health care and public health settings.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CLSC 6580 - Qualitative and Mixed Methods in Health Research (3 Credits)**

This course provides an in-depth examination of qualitative and mixed methods approaches that are pertinent to health research.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6585 - Power for Multilevel & Longitudinal Studies (2 Credits)**

Course covers power and sample size methods for longitudinal and multilevel study designs. Software used for this course is free, open-source, web-tablet and smart phone-based ([www.glimmpse.SampleSizeShop.org](http://www.glimmpse.SampleSizeShop.org)). This is a three-day intensive and interactive course with online discussion the two weeks following the intensive. Prerequisites: BIOS 6601 and BIOS 6602 or equivalent applied statistic courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6590 - Navigating the Clinical Research Regulatory Maze (1 Credit)**

This is a seminar series covering regulatory requirements and best practices related to FDA audits, billing, collaborative/team research, and distinguishing research from quality improvement projects. Prerequisites: For students with no clinical research experience, it is recommended they take "Getting Started: your introduction to Clinical Research" a 3 hr. lecture as one of their optional lectures, preferably before the course starts or within first 2 months of the course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**CLSC 6608 - Statistics for the Basic Sciences - CLSC Supplement (1 Credit)**

This course provides an overview of epidemiology, logistic regression, and survival analysis, techniques that apply to many areas of clinical research. Coreq: CLSC 6606 (BIOS 6606) Restrictions: Enrollment in CLSC graduate program or permission of the instructor.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6650 - Guided Research Tutorial - Masters (1-3 Credits)**

An independent study course developed by the student and the appropriate faculty member based on the area of study. Students meet regularly with the selected course instructor, the student and course instructor will develop a course plan prior to registration.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6653 - Key Concepts in Neurodevelopmental Disabilities I (2 Credits)**

Course represents part one of two-part interdisciplinary course series focused on systems, options for diagnosis/assessment and alternatives for service provision related to children/youth/young adults with neurodevelopmental and related disabilities and their families to address this population's special health care needs. Prereq: A degree in healthcare profession or related field or instructor consent.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 6654 - Key Concepts in Neurodevelopmental Disabilities II (2 Credits)**

This course represents part two of a two-part interdisciplinary course series focused on service provision, intervention strategies and service provision related to children/youth/young adults with neurodevelopmental and related disabilities and their families to address this population's special health care needs. Prereq: A degree in health care profession or related field or instructor consent and completion of CLSC 6653.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 6657 - Cultural Factors in Healthcare (1 Credit)**

Online course will introduce the subject of cultural/social determinants of maternal and child health in the present society, including worldviews on health perspectives (wellness versus illness), and address the impact of emerging demographic changes on systems of care. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**CLSC 6658 - Interdisc. Approach to Promoting Early Parent Child Relationships-Part 1: Theory (2 Credits)**

Part one of a two-part course series that will examine the theory and research relevant to the assessment of early parent-child relationships as well as the clinical application for interventions across disciplines that are intended to promote/improve child health outcomes. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CLSC 6659 - Interdisc. Approach to Promoting Early Parent/Child Relationships- II Measurements (3 Credits)**

Part two of a two-part course that will examine research relevant to assessment of early parent/child relationships, identify intervention strategies by analyzing observational findings, as well as evaluate effectiveness of interventions across disciplines intended to promote/improve child health outcomes. Prereq: A degree in health care profession or related field or instructor consent. Completion of CLSC 6658.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6660 - Team/Consult/Leadership 1 (2 Credits)**

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**CLSC 6661 - Leadership Dialogues I (2 Credits)**

This interdisciplinary leadership course focuses on leadership strategies needed for providing family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6662 - Leadership Dialogues II (1 Credit)**

This interdisciplinary leadership course focuses becoming change agents to better provide family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: a degree in health care profession or related field or instructor consent.

CLSC 6661

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CLSC 6663 - Intervention for Individuals with Developmental Disabilities (3 Credits)**

This interdisciplinary course reviews evidence-based practices in intervention for children with autism and other neurodevelopmental disorders, presented through lectures, critical readings of the literature, case discussions, and case presentations. Prereq: Degree in health care profession or related field or consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6664 - Leadership Dialogues III (1 Credit)**

This interdisciplinary leadership course focuses on leadership strategies needed for provided family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: Degree in health care profession or related field or consent of instructor. Restrictions: Nursing only.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CLSC 6665 - Leadership Dialogues IV (1 Credit)**

Leadership Dialogues IV builds upon skills addressed in Leadership Dialogues III with the addition of content that integrates critical and systems thinking and ethical decision making with the leadership and team concepts and skills developed in LD III. Prereq: Degree in health care profession or related field or consent of instructor and CLSC 6664. Restrictions: Nursing only.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 6668 - Screening/Assessment for Children/Youth with Autism/Neurodevelopmental Disabilities (3 Credits)**

This interdisciplinary course presents best practices in screening/assessment for autism, focusing on: identification of symptoms of autism; differentiation of autism from other disorders; recognition of symptoms; examination of culture on clinical presentation; and approaches to share observations. prereq: a degree in health care profession or related fields (or consent of instructor).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 6699 - Masters Research Project: Publishable Paper (1-6 Credits)**

During course students working with his/her research mentor and research project committee to plan, execute, write Final Research Project in form of a publishable paper. In addition, students prepare for Final Research Project Examination. This is a capstone course. Prerequisite: Consent of program. BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612, CLSC 7150, EPID 6630.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 6750 - Designing for Dissemination and Sustainability (2 Credits)**

This course is one of three that focuses on dissemination and implementation research. This course reviews the organization and financing of interventions for health care systems and public health systems. The role of ethics, evidence and health equity are examined.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CLSC 6770 - Implementation Science Grant and Article Funding (2 Credits)**

This course provides an in-depth examination of issues in submitting successful grant proposals in Dissemination & Implementation research. The course will build upon good general practices in grant and manuscript preparation and submission.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CLSC 6800 - Introduction to Health Information Technology (3 Credits)**

Course intended as overview to dynamic environment of healthcare informatics. The goal of course is to prepare healthcare professionals to better utilize/manage the emerging communication technologies. A brief introduction to e-health, telehealth, electronic medical records, telecommunications and bio-informatics is provided.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 6820 - Management of Healthcare Information Technology (3 Credits)**

This course will provide an introduction to management of information technology in healthcare. A description of information processing, the origin, content and evolution of healthcare information systems and the methodologies deployed to acquire and manage information requirements will be discussed. Crosslisted: HLTH 6072.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 6850 - Adv Topics: Dissemination and Implementation Sci (1 Credit)**

Provides an overview of intermediate and advanced dissemination and implementation (D&I) science research methods in a small group discussion format. This interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.



**CLSC 6950 - Masters Research Project: Thesis (1-6 Credits)**

During this course students plan, execute, and write the Final Research Project in the form of a Masters thesis. In addition, students will prepare for the Final Research Project Examination. This is a capstone course.

Pre-requisite: CLSC 7653

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**CLSC 7101 - Grant Writing I (1 Credit)**

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601 and EPID 6630. Course

Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7102 - Grant Writing II (1 Credit)**

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601, EPID 6630, CLSC 7101.

Course Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)**

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 7202 - Clinical Outcomes and Applications (3 Credits)**

This course focuses on research methodologies in clinical care, costs, health systems, policy, and health outcomes, as well as an overview of major issues in clinical outcomes research. Students are provided with both theory and application through case studies.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CLSC 7300 - Scientific Grant Review Process: CCTSI Proposals (1 Credit)**

Students will understand and participate in the process of scientific review of human subject research protocols submitted to the University of Colorado Denver Clinical Translational Research Centers at University Hospital and the Children's Hospital. Prereq: BIOS 6601 BIOS 6602 or BIOS 6611 and BIOS 6612.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CLSC 7500 - Practical Application of Molecular & Cell Biology Techniques for Clinical Investig (3 Credits)**

Designed to teach clinical investigators basic molecular and cellular biology techniques. Format will be hands-on with lectures designed to illustrate significance and clinical application of techniques. Weekly special topics lectures will cover cutting-edge technologies and their application.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**CLSC 7650 - Guided Research Tutorial - Doctoral (1-3 Credits)**

This is an independent study course developed by student and appropriate faculty member based on area of study. Students meet regularly with selected course instructor. The student and course instructor will develop course plan prior to registration of the course.

Prereq: Consent of program approved course plan closed registration.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CLSC 7653 - Dissemination and Implementation Research in Health (3 Credits)**

Introduces dissemination and implementation (D&I) research and practice in the context of health (i.e. translational research in health). This is a graduate level course and students should have a working understanding of study designs and statistics.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**CLSC 7663 - Context & Adaptation in D&I Research (2 Credits)**

This course covers concepts, frameworks, and methods for understanding and assessing context and guiding adaptations as relevant to dissemination and implementation (D&I) health research and practice. Prerequisite - CLSC 7653.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CLSC 8990 - Doctoral Thesis (1-10 Credits)**

This course involves the student working with his/her research mentor and research project committee develop, design and execute a clinical science doctoral study as well as to write up the project as a thesis.

Prerequisite: Program consent. BIOS 6601 or BIOS 6611, BIOS 6602 or BIOS 6680 and HSMP 6617, CLSC 7150, EPID 6630, BIOS 6648 or EPID 6626 or HSMP 6670. Restrictions: Only CLSC PhD students or collaborative CLSC and CSPH Health Services Research Students.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Clinical Sciences-CSU (VSCS)

**VSCS 5330 - Epidemiologic Infections Disease/Zoonosis (3 Credits)**

Epidemiologic features of infectious and parasitic diseases that have a major impact on community medicine.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**VSCS 6480 - Food Animal Production and Food Safety (2 Credits)**

Basic orientation to food animal production units, heard health concepts, and issues of food safety from preharvest through processing and distribution.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**VSCS 7950 - Independent Study - Epidemiology (1-5 Credits)**

Specialized study in epidemiology under supervision of faculty.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Community Behavioral Health Science (CBHS)

**CBHS 6610 - Social and Behavioral Factors and Health (3 Credits)**

Considers social, behavioral, and cultural factors that affect the health of individuals and populations, and contribute to health disparities.

Development, implementation and evaluation of programs and policies to promote and sustain health environments and lifestyles are examined.

Online in summer.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**CBHS 6611 - Foundations of Health Behavior (3 Credits)**

Course will cover basic theories, concepts, models from a range of social/behavioral disciplines used in public health research and practice.

Applications of theoretical frameworks in specifying multiple targets and levels of intervention to public health research will be addressed.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**CBHS 6612 - Methods in Research and Evaluation (3 Credits)**

Course covers social science research methods, including qualitative/quantitative research designs, data collection, and program evaluation (formative, process, outcome), to assess effectiveness of public health programs. Prerequisite: BIOS 6601 and EPID 6630 strongly recommended prior to this course or taken concurrently.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring, Summer.

**CBHS 6613 - Program Planning and Implementation (3 Credits)**

Course examines planning and implementation process with specific focus on health promotion programs. Students will learn about: needs assessments; specifying program objectives; using behavior change theory and evidence-based strategies; developing program, evaluation, adoption, implementation & sustainability plans. Prereq: CBHS 6611 and CBHS 6612

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**CBHS 6614 - Childhood Obesity (1 Credit)**

This course provides an overview of childhood obesity assessment, prevention and treatment. Key childhood obesity topics and challenges will be covered within the context of public health. NOTE: This course cannot be taken for credit toward the Public Health Nutrition program.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**CBHS 6615 - Health Literacy & Public Health (2 Credits)**

This course provides an in-depth examination of health literacy...what it is, what implications it has for health, and how healthcare and public health professionals can ensure that treatment and intermention approaches are appropriate for people across helath literacy levels.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**CBHS 6616 - Intimate Partner Violence: Epidemiology (1 Credit)**

This course will provide an overview of intimate partner violence, addressing the epidemiology of the problem; theory of causes and consequences; and evidence-based prevention and treatment strategies. Critiques of past approaches and gaps in research and prevention will be highlighted.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**CBHS 6617 - Nutrition and Public Health (1 Credit)**

This survey course begins with an overview of nutrition and its relation to health and disease. The learner will gain experience in reading and evaluating published nutrition research. The second half of the course focuses on public health nutrition topics. This course cannot be taken for credit toward the PHN program.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**CBHS 6618 - CURRENT RESEARCH AM INDIAN ALASKA NAT CHILD HEALTH DEV (1 Credit)**

The Native Children's Research Exchange assembles researchers studying child and adolescent development in American Indian and Alaska Native communities. Students will attend this conference and examine lessons learned in presentations and thru background readings, facilitated by faculty.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**CBHS 6619 - Public Health in the Global Community (3 Credits)**

This course is a study of population health issues around the world. It enables students to assess the current health status of a country and understand and critically appraise the magnitude and likely causes of various health-related conditions. Credit will only be given for one of the following courses: PSCY 5170, ANTP 5710 or CBHS 6619

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring, Summer.

**CBHS 6620 - Survey Research (3 Credits)**

Course examines survey research methodology, including face-to-face, telephone, mail and Internet surveys, includes: developing and ordering questions; formatting; reliability and validity; sampling; implementation; maximizing response rate; data issues; survey ethics and reporting. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**CBHS 6621 - Introduction to Maternal and Child Health (3 Credits)**

Introduction to the interdisciplinary field of maternal and child health and the complex health issues facing women, children and families. By incorporating a life course perspective students will explore how communities and governments work together to protect and advance the unique needs of this population's health and well-being.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**CBHS 6622 - Qualitative Research Methods (3 Credits)**

This course is designed to teach graduate students how and when to use a variety of qualitative methods in public health research. Students will gain experience and skills in designing, implementing, analyzing, and writing up the results of qualitative research.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**CBHS 6624 - Community Health Assessment (3 Credits)**

Course teaches how to assess the social, cultural, economic, physical, and environmental components of population health. Students use national/local demographic and health data. Includes working with community clients and off-campus community-based fieldwork. Prereq: EPID 6630; CBHS 6610 or CBHS 6611.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring.

**CBHS 6625 - Current Regional Issues in Maternal & Child Health (1 Credit)**

Current regional issues, best practices and emerging practices in maternal and child health are explored at a large regional public health conference, and debriefed daily with an instructor. Pre-conference study and post-conference synthesis are required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**CBHS 6626 - Public Health and Aging (2 Credits)**

Introduces students to 1) factors across the social-ecological spectrum that will affect population patterns of health, disease, and risk factors to older adults; and 2) appropriate responses by public health, aging services and the research community. Offered even years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**CBHS 6627 - Maternal Nutrition (1 Credit)**

This course provides an overview of nutrition issues affecting pregnant and breastfeeding women. Using a life course perspective, the course integrates clinical information with public health practice. This course cannot be taken for credit toward the PHN program. Requisite: CBHS 6617 Nutrition and Public Health or a basic nutrition course at the undergraduate or graduate level

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**CBHS 6628 - Tech-based health Promotion (3 Credits)**

This course will introduce students to health promotion programs delivered using computers, the internet and mobile phones. Students will learn strategies for designing, implementing and evaluating technology-based programs and will develop a technology-based health promotion program as a class project.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**CBHS 6629 - Health and Human Rights (3 Credits)**

Examines the relationship between health and human rights with an emphasis on the principles of confidentiality, autonomy, justice, and beneficence. Using case studies, students will discuss practical, concrete strategies for improving health and well-being while protecting rights.

Course offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**CBHS 6631 - Introduction to Sexual and Reproductive Health (1 Credit)**

Introduction to the biology of human sexuality and reproduction, components of healthy sexual relationships, prevention of sexually transmitted infections and fertility control and issues related to sexual orientation. NOTE: Credit toward a CSPH certificate or degree will only be given for CBHS 6631 or CHBH 5750

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**CBHS 6632 - Public Health in the Caribbean and Latin America (3 Credits)**

Course provides overview of global health issues related to community health assessment, program planning and implementation, and program evaluation by providing an intensive study of public health in the Caribbean and Latin America. Offered in Fall of even years.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall.

**CBHS 6633 - Intensive Study of Public Health Services in Cuba (3 Credits)**

Intensive study of public health system in Cuba, with 2-week trip. Examines health status; public health infrastructure; primary care and prevention services; environmental health; program effectiveness; resource allocation; and social, political, and economic factors influencing health/health services delivery. Permission of the Instructor is required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**CBHS 6634 - Adolescent Health (1 Credit)**

This course will provide an overview of the major adolescent health issues, with a strong focus on the United States. The course will take a public health perspective and integrate a review of evidence-based prevention strategies into each health topic covered.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**CBHS 6635 - Child Nutrition (1 Credit)**

This course provides an overview of child nutrition from infancy to adolescence. Key child nutrition topics and challenges will be covered within the context of public health. Notes: CBHS 6617 Nutrition and Public Health or a basic nutrition course at the undergraduate or graduate level or permission of the instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**CBHS 6636 - Early Childhood Hlth, ACEs, Toxic Stress, Hlth Equity (1 Credit)**

Early childhood health issues and how social conditions, public policies and inequities impact young children. By advancing a compelling documentary series, early life conditions such as adverse childhood experiences, toxic stress and epigenetics are examined along with their impact on brain architecture, resilience and health outcomes.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**CBHS 6637 - Applied Quantitative Analysis for Comm Hlth Science (3 Credits)**

This course is designed to provide students with an introduction to database management and common statistical analyses used in community health science. Emphasis will be placed on understanding how to prepare data to be analyzed and on being able to run and evaluate common statistical techniques using SPSS.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**CBHS 6638 - Advanced Qualitative Research Methods (3 Credits)**

This course provides advanced graduate students in public health instruction in advanced qualitative paradigms and methods and training in analyzing, interpreting and writing qualitative research.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**CBHS 6639 - Health Behavior/Primary Care Field Work Experience (1 Credit)**

This course is designed to afford students an opportunity to apply health behavior theoretical knowledge in a real world setting. Students will provide wellness coaching on health behaviors to patients in a primary care setting.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring.

**CBHS 6640 - Leadership for Public Health Practice (3 Credits)**

Part of a 2-year sequence. Focus of year 1: 1) assessing, using, and developing personal strengths for leadership, 2) acquiring basic skills for developing and supporting the work of others in the workplace, 3) building teams for successful work in public health, and 4) constructing a personal model for leadership in public health. Prerequisite: Enrollment in Leadership and Public Health Practice MPH concentration required. Instructor consent required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**CBHS 6641 - Developmental Screening, Strategies and Referral (1 Credit)**

This course will review early brain and child development, risk factors and conditions, typical and atypical development, developmental screening tools, early intervention programs and services, financing of services and the role of public health in service delivery for Children and Youth with Special Health Care Needs (CYSHCN).

Grading Basis: Letter Grade

Typically Offered: Spring.

**CBHS 6642 - Applied Program Evaluation-Field School (1-3 Credits)**

This course is designed to provide an applied learning experience that engages MPH students in all aspects of a program evaluation process over 2 semesters. Students will work with an actual client and design and carry out a program evaluation. Prerequisite: CBHS 6612. Instructor consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring.

**CBHS 6643 - Women's Health: A Public Health Perspective (2 Credits)**

Study and analysis of specific women's health issues from a public health and epidemiologic viewpoint including, but not limited to, social determinants of health, health disparities, health equity, public health prevention, education and advocacy domestically and internationally.

Grading Basis: Letter Grade

Typically Offered: Summer.

**CBHS 6644 - Social Determinants of AIAN Health (3 Credits)**

A thorough examination and analysis of health inequities affecting Native people in the context of social and environmental factors influencing AIAN health. Students will examine factors influencing Native health at the individual, interpersonal, organizational, community and societal levels, focusing both on community needs and assets.

Grading Basis: Letter Grade

Typically Offered: Spring.

**CBHS 6645 - Latino Health (2 Credits)**

This 4-credit course is taken over two semesters and has 3 key elements: (1) a Colloquium of national and local experts who will provide presentations in conceptual, theoretical and practical expertise on seminal topics in Latino Health (2) a Mentored-Based Learning Experience and (3) a faculty-directed Group Mentorship Experience.

Prerequisites: CBHS 6610 or CBHS 6611 and PUBH 6600

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring.

**CBHS 6646 - Community-Based Participatory Research with AIAN Communities (1 Credit)**

This course will present the basic framework of community-based participatory research (CBPR) and explore how this model works with Tribal and Urban AIAN communities. Students will experience a community-based event of their own choosing and design an engagement toolkit to work with an AIAN community on a public health problem.

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**CBHS 6647 - Foundations of American Indian Alaska Native Health (3 Credits)**

This course covers critical policies and historical context that influences the current state of AIAN health, physical and psychological health implications of government policies and clarifying the health implications these policies have on the health and well-being of AIAN people.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**CBHS 6648 - Ethical Considerations in AIAN Health (1 Credit)**

Explores multiple dimensions of health-related work with American Indian Alaska Native populations using ethical framing to explore tensions between cultural and mainstream approaches to health; research and programs implemented in the context of tribal sovereignty; and ethical approaches to addressing health in resource-scarce settings.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**CBHS 6649 - Tribal Research and Review with AIAN Communities (1 Credit)**

This course will present the historical basis, rationale, conceptual framing, and processes of tribal research and review processes. Students will learn about the variations in tribal review requirements and submit their own protocol to tribal review member in a mock review.

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**CBHS 6650 - MPH Research Paper (1-2 Credits)**

Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data. Permission of Department required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**CBHS 6670 - Special Topics: Community & Behavioral Health (1-3 Credits)**

Special interest areas of community and behavioral health are analyzed in depth. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 99.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**CBHS 6840 - Independent Study - Community & Behavioral Health. (1-3 Credits)**

Faculty directed independent study in topics related to community and behavioral health. Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**CBHS 6990 - MPH Capstone Preparation - CBHS (1 Credit)**

MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

Grading Basis: Pass/Fail with IP

This course is restricted to students with a MPH-MPH plan of study only.

Typically Offered: Fall, Spring, Summer.

**CBHS 7010 - Latent Variable Methods (3 Credits)**

Covers statistical approaches commonly used in behavioral sciences research, including reliability analysis, exploratory and confirmatory factor analysis, path analysis, structural equation modeling, and advance modeling procedures. Students will analyze data using statistical software, interpret results, and write summaries of findings. Pre-Requisite: BIOS 6601 and 6602 or equivalent.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**CBHS 7020 - DrPH Seminar in Leadership (3 Credits)**

Leadership topics: vision, values, collaborative action, teamwork, and practices with skills and application at personal, interpersonal and organizational levels necessary for effective leadership. Restrictions: Restricted to CSPH DrPH students. Cross-listed: EPID 7020.

Grading Basis: Letter Grade with IP

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**CBHS 7030 - DrPH Directed Reading (1-2 Credits)**

This course will prepare DrPH students for comprehensive exams & dissertation research by becoming an expert in their specific areas of research, including understanding of historical development of specific areas, current research findings in the specific areas, & current practice. Requires permission of course director and instructor. Cross-listed with EPID 7030.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**CBHS 7670 - CBH Advanced Seminar (3 Credits)**

This doctoral level course will address theory and practice at a level beyond that covered in CBH Master's level courses. Students will acquire advanced skills in developing, testing, and applying health behavior theory and methods to public health problems. Prereq: CBHS 6611, 6612, 6613, 6624 or equivalent, permission of instructor. Restrictions: Enrollment in DrPH or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.



CBHS 8991 - DrPH Dissertation - Community & Behavioral Health (1-10 Credits)

DrPH Dissertation work in Community and Behavioral Health

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Community Dentistry and Population Health (DSCD)

DSCD 5501 - Community Public Health 1 (0.1-5 Credits)

This course will introduce students to an array of topics that will jump-start the dental school experience. In addition to didactic work, students will visit off-campus care delivery settings, especially those serving under-served or special populations. A major focus will be risk-based, prevention using a management of disease approach.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

DSCD 5502 - Nutrition (0.1-5 Credits)

This course provides information on the chemistry and biochemistry of nutrients, food composition, food sources, selection of an adequate diet and nutritional surveillance with an emphasis on the oral cavity and the practice of dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

DSCD 5503 - Person Centered Care (0.1-5 Credits)

This course emphasizes the importance of treating a person in light of their social, environmental and cultural context. Concepts covered include person centered care, diversity and inclusivity in patient care, and functioning as part of a health professional team.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

DSCD 5855 - Independent Study (0.1-5 Credits)

Independent Study

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSCD 5877 - Independent Study (0.1-5 Credits)

Independent Study

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSCD 6601 - Community Public Health 2 (0.1-5 Credits)

This course will build upon Community Public Health I course and amalgamates public health principles and community engagement experiences.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

DSCD 6622 - Managing Your Student Practice 1 (0.1-5 Credits)

Course provides students with knowledge/skills to make the transition from pre-clinic to clinical patient. Competencies established in infection control, documentation/record keeping, patient management, medico-legal implications, ethical implications, professionalism, organization skills, communication skills, auxiliary utilization, and equipment/instrument utilization.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

DSCD 6623 - Managing Your Student Practice 2 (0.1-5 Credits)

Course provides students with knowledge/skills to make the transition from pre-clinic to clinical patient. Competencies established in infection control, documentation/record keeping, patient management, medico-legal implications, ethical implications, professionalism, organization skills, communication skills, auxiliary utilization, and

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSCD 7702 - Integration for Patient Care 1 (0.1-10 Credits)

This is the first part of a 2-course sequence in which students integrate their biomedical, behavioral, and clinical sciences knowledge through clinical applications.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSCD 7703 - Integration for Patient Care 2 (0.1-10 Credits)

This is the second part of a 2-course sequence in which students integrate their biomedical, behavioral, and clinical sciences knowledge through clinical applications.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSCD 7705 - Clinical Transformations: Interprofessional Education (0.1-5 Credits)

This course, taught in a team-based format in a simulated clinical environment, evaluates campus-wide competencies in teamwork, collaborative interprofessional practice, quality and safety. Students explore health care professional roles, and build communication skills with members of the health care team/patient/family.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSCD 7706 - Clinical Transformations: Interprofessional Education (1-5 Credits)

This course, taught in a team-based format in a simulated clinical environment, evaluates campus-wide competencies in teamwork, collaborative interprofessional practice, quality and safety. Students explore health care professional roles, and build communication skills with members of the health care team/patient/family.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSCD 7709 - Community Public Health 3 (0.1-5 Credits)

This course exposes students to the public aspects of oral health care. It identifies the significance and scope of public health programs at all levels of government and relates the public activities to the private practice of dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

DSCD 7710 - Behavioral Health (0.1-5 Credits)

This course develops foundational knowledge in mental health/disorders, and enhances skills in building rapport and motivating patients to change health behaviors, through lecture and two standardized patient interviews. Reviews managing anxious or fearful patients, and communication skills including cross-cultural communication.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

**DSCD 7711 - Geriatrics and Gerontology (0.1-5 Credits)**

This course addresses clinical considerations for older adult patients and provides a basic understanding of the physiologic, pharmacologic, psychological and social aspects of aging. Reviews pathological changes that affect oral health treatment of dental diseases and patient management.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

**DSCD 7713 - INBDE Preparation Course 1 (0.1-10 Credits)**

This is part one of a 2-course independent-study series in which students utilize Integrated National Board Dental Exam (INBDE) practice questions and supplementary study materials, and take a mock INBDE in preparation for challenging the INBDE beginning in the DS3 Summer Semester.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 7720 - Behavioral Health, Gerontology and Geriatrics (0.1-5 Credits)**

Developing foundational knowledge in mental health/illness (mental health literacy), geriatrics and care for adult patients with developmental disabilities. Additionally at enhancing skills in building rapport/motivating patients for adoption of health behaviors, through lecture and two standardized patient interview experiences.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSCD 7726 - Dental Practice Planning (0.1-5 Credits)**

Teaches students to make basic decisions relating to planning/implementation of private practice. Primary focus on practice arrangements, business formats, dental associateships, buying a practice, designing and equipping dental office, financing practice, leases, debt management, personal/professional insurance, and selecting professional advisors.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSCD 7730 - Dentistry for Adults with Special Health Care Needs (0.1-5 Credits)**

To introduce students to medical problems/disabilities affecting patients who will be treated in the School's Special Care Clinic. This includes foundational knowledge in the features of common congenital disabilities, proper communication techniques, and assessment of the oral health treatment strategies most compatible for the patient.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSCD 7791 - Community-Based Clinical Dentistry 1 (0.1-5 Credits)**

Students are required to complete assignments to practice in community-based ACTS Program sites. The specific objectives of these clinical assignments vary according to the site assigned each student. Sites include multi-disciplinary community health care centers, institution- or hospital-based treatment centers, & private practices.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSCD 7796 - Special Care Clinic A (0.1-5 Credits)**

This course is designed to introduce dental students to provide dental treatment to the special needs population. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 7797 - Special Care Clinic B (0.1-5 Credits)**

This course is designed to introduce dental students to provide dental treatment to the special needs population. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSCD 8812 - Dental Ethics and Jurisprudence (0.1-5 Credits)**

This course prepares students for appropriate conduct consistent with the legal and ethical principles of the dental profession. It lays the foundations for each student's continued growth with respect to the legal and ethical obligations of professionalism.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 8822 - Practice Management (0.1-5 Credits)**

Primary focus is on financial records, billing and collections, professional insurance, fees, clinical records, third party relations, case presentation, practice analysis, dental practice marketing, and personnel management.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 8847 - Comprehensive Patient Care Clinic H (0.1-11 Credits)**

Continuation of advanced comprehensive patient care activities for DS 4 dental students not registered for Integrated Care Clinical Dentistry.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSCD 8866 - Independent Study (0.1-10 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 8892 - Community-Based Clinical Dentistry 2 (0.1-10 Credits)**

Students complete six weeks (may elect an additional eighteen weeks) in a non-metropolitan community-based educational site. Objectives of clinical experiences vary according to site assignment and include rural community health centers, psychiatric hospitals, migrant health care, or private practice locations.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSCD 8893 - Community-Based Clinical Dentistry 3 (0.1-10 Credits)**

Students complete six weeks (may elect an additional eighteen weeks) in a non-metropolitan community-based educational site. Objectives of clinical experiences vary according to site assignment and include rural community health centers, psychiatric hospitals, migrant health care, or private practice locations.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 8894 - Community Based Clinical Dentistry 4 (0.1-10 Credits)**

Students complete six weeks (may elect to take additional eighteen weeks) in a non-metropolitan, community-based educational site. Current sites include rural community health centers, special patient care hospitals, and migrant health care programs as well as several private practice locations.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSCD 8896 - Special Care Clinic C (0.1-5 Credits)**

This course is designed to introduce dental students to provide dental treatment to the special needs population. Department consent required.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

## Community Health-UNC (CHBH)

### CHBH 5000 - Stress Management (3 Credits)

A holistic approach to stress management, with cognitive and theoretical knowledge and stress reduction techniques to prevent or alleviate physical symptoms of stress.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

### CHBH 5050 - Health Communications and the Media (3 Credits)

Focuses on the design, production, evaluation and acquisition of appropriate media and materials for health education/promotion programs.

Grading Basis: Letter Grade

Repeatable. Max Credits: 99.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

### CHBH 5080 - UNC Special Topics (3 Credits)

This course will be a forum to discuss important topics related to community and behavioral health. Such topic areas can include: preparation for field work in culturally diverse communities, historical trauma and health and others. Topics offered will change by semester, see specific schedule.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

### CHBH 5090 - Behavior Change Theories (3 Credits)

Review theories of behavior and behavior change as they relate to current health issues. Health behavior change models will be examined and applied.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

### CHBH 5100 - International Health: Cross Cultural Comparisons (3 Credits)

This class explores the multicultural aspects of health and international comparisons of various health indicators. Students will examine specific health problems, and the nature of health care delivery worldwide. This course is only offered during select semesters. Please check the CSPH schedule of classes each semester to verify offering.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

### CHBH 5250 - Contemporary Issues in School Health (3 Credits)

This course examines the relationship between child/adolescent health and their school experience. The course will be organized around the eight components of the Coordinated School Health Program Model. Current issues and approaches to school health will also be presented. This course is offered Fall of odd years only.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

### CHBH 5300 - Strategies for Community Health Promotion (3 Credits)

This course examines the effectiveness of a wide range of community strategies used in health promotion/disease prevention programs.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

### CHBH 5320 - Physical Activity and Public Health (3 Credits)

An examination of physical activity and the public health implications of physical inactivity. Emphasis will be placed on epidemiologic evidence of physical activity benefits and chronic disease prevention. This course is offered Spring of even years only.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

### CHBH 5330 - Physical Activity Interventions in the Community (3 Credits)

This course is designed to acquaint graduate students with theory-based interventions to increase participation in physical activity. The course will cover a variety of evidence-based approaches to physical activity promotion targeting various sub-populations and settings within the community.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

### CHBH 5350 - Effective Community Health Engagement (3 Credits)

This course will enable students to develop skills necessary to effectively work with and within a variety of communities to promote public health. Topics include historical impacts, effective theories and strategies, appropriate tools to consider and others. Prerequisite: CHBH 5300 or Consent of Instructor

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

### CHBH 5500 - Environmental Health (3 Credits)

Investigate and discuss the relationships of environmental health problems to human health and welfare. Include sources of these problems, their recognition and control and current research studies.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

### CHBH 5680 - Rural Community Health Issues (3 Credits)

A study of social, economic, political, and cultural influences that impact the health of individuals and families in rural communities. This course focuses on improving health status and developing culturally appropriate and effective interventions and services in rural settings.

Grading Basis: Letter Grade

Additional Information: Univ of Northern Colorado.

Typically Offered: Summer.

**CHBH 5750 - Public Health Issues in Reproductive Health (3 Credits)**

This course will examine reproductive health issues that impact society and public health. Topics include pregnancy, childbirth, teen pregnancy, sexually transmitted infections, birth control, infertility, abstinence only educational programs and comprehensive sexuality education.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Summer.

**CHBH 6100 - Program Planning and Evaluation (3 Credits)**

Theories and practices of program planning and evaluation including needs assessment, planning approaches, selection of strategies, data collection and analysis, evaluation design, program implementation and utilization of evaluation data. Prereq: CHBH 5090 or consent of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

**CHBH 6120 - Statistical Applications in Public Health (3 Credits)**

Applied statistical methods for students in public health. Developing statistical literacy and an ability to perform basic statistics, data summarizations and hypothesis testing using statistical software will be emphasized.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

**CHBH 6150 - Methods in Public Health Research and Evaluation (3 Credits)**

Public health research methods, qualitative/quantitative research designs, data collection/analysis and program evaluation. Students will conduct an evaluation project with a local public health agency. Prerequisite: CHBH 6120 or consent of instructor. Cannot apply both this course and CBHS 6612 towards the MPH degree.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

**CHBH 6200 - UNC Epidemiology (3 Credits)**

Epidemiological principles analyzed with an emphasis on selected topical issues, infectious and chronic/degenerative diseases, research design and analysis. Practical applications of statistical and epidemiological methods.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

**CHBH 6220 - Directed Studies (1-4 Credits)**

Individualized investigation under the direct supervision of a faculty member. Minimum of 37.5 clock hours required per credit hour. Repeatable. Maximum concurrent enrollment is two times. Restrictions: Instructor consent.

Grading Basis: Letter Grade

Repeatable. Max Credits: 8.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**CHBH 6350 - Policy, Advocacy, Leadership & Management in Community Health (3 Credits)**

Health policy, advocacy, leadership and management is a multidisciplinary field of public health practice that is concerned with the delivery, quality and costs of public health services. Pre-Requisite: PUBH 6600 or consent of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

**CHBH 6860 - Master of Public Health Capstone Project (2 Credits)**

Independent project in which student demonstrates public health competencies. Includes public presentation of project. Prereq:

CHBH 6930 or concurrent. Consent of instructor required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

**CHBH 6930 - Master of Public Health Practicum (2 Credits)**

Theory and skills applied in a public health setting. Students must complete a minimum of 150 practicum field hours incorporating core competencies. Prerequisite: CHBH 6100 and consent of Instructor.

Grading Basis: Pass/Fail Only

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

**CHBH 6990 - MPH Research Project - UNC (1-6 Credits)**

Optional supervised research project for Master of Public Health candidates in Health Education. Content to be jointly determined by student and sponsoring professor.

Grading Basis: Pass/Fail with IP

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

## Community-Based Hospice & Palliative Medicine (CHPM)

**CHPM 7001 - Comm-Based Hospice and Pall Med Fellowship - A (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**CHPM 7002 - Comm-Based Hospice and Pall Med Fellowship - B (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**CHPM 7003 - Comm-Based Hospice and Pall Med Fellowship - C (4 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

**CHPM 7004 - Comm-Based Hospice and Pall Med Fellowship - D (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

**CHPM 7005 - Comm-Based Hospice and Pall Med Fellowship - E (8 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Spring.

**CHPM 7006 - Comm-Based Hospice and Pall Med Fellowship - F (4 Credits)**

For physicians MSPC students who are accepted as CB-HPM Fellows. Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

## Computational Bioscience (CPBS)

**CPBS 7001 - Computer Science for Biologists (5 Credits)**

This course is an introduction to the fundamental concepts of computer science, the central ideas of computing, and the practices of computational thinking; designed for the basic science PhD programs. It will engage students in activities that allow them to competently apply CS tools to their field.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CPBS 7605 - Ethics in Bioinformatics (1 Credit)**

Discussions of professional conduct, social implications of research and questions raised by biomedical research, with an emphasis on topics relevant to computational biologists. Active student participation is required. Offered every other year.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**CPBS 7606 - Statistics for the Basic Sciences (3 Credits)**

This course provides an overview of fundamental concepts in statistics such as hypothesis testing and estimation and it provides an overview of statistical methods (for example, regression and analysis of variance) that apply to many areas of science. Crosslisted Course: BIOS 6606.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**CPBS 7620 - Advanced Genome Analysis (2 Credits)**

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, microbiome analysis, functional genomics, ethics.

Crosslisted Course: HMGP 7620, STBB 7620, and MICB 7620

Grading Basis: Letter Grade

Typically Offered: Spring.

**CPBS 7630 - Computational Methods for Data Challenges in Biomed (3 Credits)**

Covers three computational data modules: Bioinformatics, Clinical Informatics, and Public Health Informatics. Cases are from three biomedical big data initiatives; the Grand Opportunity Exome Sequencing Project (GO-ESP), The Cancer Genome Atlas (TCGA), and Library of Integrated Network-Based Cellular Signature (LINCS). Prerequisite:

CPBS 7711 & CPBS 7712

Grading Basis: Letter Grade

Typically Offered: Fall.

**CPBS 7640 - Bioinformatics in Linguistics (3 Credits)**

This course will be structured around understanding problems, understanding algorithms, and working through solutions from bioinformatics, computational biology, natural language processing, and linguistics. Prerequisite: CPBS 7711; corequisite: CPBS 7712

Grading Basis: Letter Grade

Typically Offered: Spring.

**CPBS 7650 - Research in Computational Bioscience (1-5 Credits)**

Research work in Computational Bioscience. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 7655 - Statistical Methods in Genetic Association Studies (3 Credits)**

This course is designed to give an introduction to statistical methods in genetic association studies. Topics include an introduction to population genetics topics relevant to genetic association studies, design strategies, and analysis methods for case-control and family data. Prereq: BIOS 6612 or permission of instructor. Crosslisted Course: BIOS 6655.

Grading Basis: Letter Grade

Typically Offered: Fall.

**CPBS 7659 - Statistical Methods in Genomics (3 Credits)**

This course will give an introduction to statistical methods for analyzing molecular sequences and genomic data. Topics include hidden Markov models for sequence alignment, molecular evolution and gene expression data analysis. Prereq: BIOS 6611 or equivalent graduate level statistics course with consent of instructor. Crosslisted Course: BIOS 6659

(sponsoring department) / BIOS 7659

Grading Basis: Letter Grade

Typically Offered: Spring.



**CPBS 7660 - Analysis of Genomics Data Using R and Bioconductor (2 Credits)**

This course provides students with hands on experience in solving real life biological problems using the statistical software R and Bioconductor. Students will work and communicate with participating researchers and clinicians on their case studies of genomics data. Pre/Corequisite BIOS 6602 or 6612, or consent of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**CPBS 7711 - Methods and Tools in Biomedical Informatics (4 Credits)**

An introduction to algorithms for the theory and practice of bioinformatics and computational biology. Topics include: 1) Experimental design; 2) Statistical concepts; 3) Sequence alignment; 4) networks and systems biology.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**CPBS 7712 - Research Methods in Biomedical Informatics (4 Credits)**

This course focuses on application of algorithms to analysis of different types of big data and provides training in how to plan, develop, execute and report on research in computational biology. Topics include: 1) Molecular Data; 2) Biomedical data; 3) Drug/disease data.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**CPBS 7785 - Independent Study in Computational Bioscience (1-3 Credits)**

This course is listed for the benefit of the advanced student who desires to pursue one or more topics in considerable depth. Supervision by a full-time faculty member is necessary. Prerequisite: Permission of Instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 7791 - Readings in Computational Bioscience (1 Credit)**

A seminar course in which students read and present recent publications from the primary computational bioscience literature. Prereq: Consent of instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 7792 - Special Topics in Computational Bioscience (1-3 Credits)**

Topic varies by semester. Designed to give students a chance to evaluate critically some practical or theoretical problem under faculty supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prerequisites: Permission of Instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**CPBS 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral Thesis work in Computational Bioscience. Prerequisites: Permission of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## DDS Electives (DSEL)

**DSEL 9100 - Elective - Advanced Readings in Pediatric Dentistry (0.1-5 Credits)**

Elective seminar offered to interested DS3 students. Each week a different topic in pediatric dentistry will be covered. Students will be expected to read and discuss relevant, current, peer reviewed journal articles and to complete one final assignment.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DSEL 9102 - Trifinio Guatemala Dental Elective (0.1-5 Credits)**

This course is offered to eligible students who wish to travel for one week to Trifinio, Guatemala to provide comprehensive dental care at the CU Center for Global Health's Trifinio Health Clinic. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DSEL 9104 - Introduction to Global Health (0.1-5 Credits)**

This course consists of 6 seminars covering various global health topics including: global oral health, building a sustainable global oral health program, safe drinking water and GI illnesses, child nutrition, global health policy making and system challenges, and cultural awareness.

Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**DSEL 9105 - Perio After Dark Elective (0.1-5 Credits)**

This course is designed to make the student more familiar with the normal periodontium, to supplement current surgical periodontics knowledge, and to reiterate important concepts regarding the epidemiology, etiology, and pathogenesis of periodontal disease.

Requirement: Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSEL 9109 - Culinary Dental Medicine Elective (0.1-5 Credits)**

Students will work alongside culinary students in the kitchen for hands-on culinary and nutrition training. In addition to preparing recipes and discussing the health benefits, cost, etc. of the recipes, students will also complete modules, readings and discussions about a variety of nutrition topics and nutrition-related diseases. Department consent required

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**DSEL 9110 - Refugee and Immigrant Health (0.1-5 Credits)**

This course addresses the very timely issue of refugees and immigrants. Students will learn the integration and screening process of refugees, the common physical (including oral) and mental health issues that are prevalent in the refugee community, the role of various playes as well as opportunities to get involved.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DSEL 9111 - Graduate Periodontics Dental Student Assisting Elective (0.1-10 Credits)**

Provides dental students exposure to the periodontal specialty of dentistry. Provides dental students exposure to medically complex patients and how these patients are treated. It allows observation in complex treatment planning, surgical & non-surgical periodontal procedures, simple & complex extractions, & intravenous moderate sedation.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DSEL 9112 - Blending the Art of Observation and Listening (0.5-10 Credits)**

Observation, active listening, accurate description and interpretation are essential clinical skills. To develop these skills, visual and performance art provide a creative, safe and culturally diverse environment for refining these abilities. Participation in experiential and expert guided activities in galleries frame the experience.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

## Dental International Program (DISP)

**DISP 7100 - Principles of Direct and Indirect Restorations Didactic (0.1-5 Credits)**

This seminar-based course introduces the student to an overview of contemporary restorative procedures in a simulated clinical environment.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7101 - Principles of Direct and Indirect Restorations Lab (0.1-5 Credits)**

This laboratory-based course provides students with an overview of restorative techniques in a simulated clinical environment.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7102 - Occlusion (0.1-5 Credits)**

Course covering principles of intra and inter-oral relationships. Course will also cover diagnosis and treatment regarding the occlusion relationship.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7103 - Occlusion Laboratory (0.1-5 Credits)**

The laboratory portion of this course includes fabrication of different splint types. It also introduces principles of equilibration and applying these principles to models.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7104 - Independent Study (0.1-5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7106 - Clinical Practice Ethics (0.1-5 Credits)**

Case-based ethics discussion.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7107 - Clinical Dental Materials (0.1-5 Credits)**

This course will provide knowledge on the science, properties, and manipulation of dental materials and their application in dental practice.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Spring.

**DISP 7111 - Complete and Removable Prosthodontics 1 (0.1-5 Credits)**

The educational goal of this course is for the student to be able to collect information, diagnose, and develop a treatment plan for a completely edentulous patient that requires removable complete denture treatment, in order to restore them to good oral health and function as well as offer an accurate prognosis of treatment.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7112 - Cariology (0.1-5 Credits)**

Basic knowledge about dental caries and didactic instruction and exercises in identifying caries, learning and evaluating detection methods. Additionally, identifying and correlating factors that contribute to caries, and developing programs for prevention and management to reduce identified factors.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7113 - Complete and Removable Prosthodontics 2 (0.1-5 Credits)**

The educational goal of this course is for the student to be able to collect information, diagnose, and develop a treatment plan for a completely edentulous patient that requires removable complete denture treatment, in order to restore them to good oral health and function as well as offer an accurate prognosis of treatment.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 7114 - Complete and Removable Prosthodontics Lab 1 (0.1-5 Credits)**

The laboratory part of the course includes the design and fabrication of a removable complete denture.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7115 - Complete and Removable Prosthodontics Lab 2 (0.1-5 Credits)**

The laboratory part of the course includes the design and fabrication of a removable complete denture.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 7119 - Communication and Behavior Change (0.1-5 Credits)**

This interactive course focuses on communication skills for enhanced treatment planning dialogues and to facilitate behavior changes toward systemic and oral health, Professionalism, ethics and the patient-centered approach are emphasized within a humanistic culture in oral health care settings.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 7121 - Endodontics 1 and 2 (0.1-5 Credits)**

Course is an introduction to basic endodontics therapy. The philosophy of endodontics treatment and therapeutic techniques is discussed. Mechanisms of inflammation and repair are related to decisions in clinical practice.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring, Summer.

**DISP 7122 - Periodontology 3 (0.1-5 Credits)**

This course deals with the prevention, treatment and control of periodontal disease. Currently accepted therapies are discussed in detail. In addition, the student is taught how to evaluate new therapies which periodically become available.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7123 - Periodontology 3 Laboratory - Section 1 (0.1-5 Credits)**

This course runs parallel with Periodontology 3. This course is devoted to teaching the clinical skills necessary for the practice of periodontics within the context of a general dental practice.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7124 - Clinical Dental Pharmacology (0.1-5 Credits)**

Integration of basic drug mechanisms with fundamentals of clinical pharmacology and patient care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7125 - Pain Control 1 (Local Anesthesia) (0.1-5 Credits)**

The anatomy of the nerve supply to the teeth and associated structures is covered. The techniques for administration of local anesthesia to the maxilla and mandible are demonstrated by the faculty and performed by the student.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7126 - Prevention and Management of Medical Emergencies (0.1-5 Credits)**

The prevention, diagnosis, and management of medical emergencies are presented.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7129 - Introduction to Clinical Dentistry (0.1-5 Credits)**

This course reviews the fundamental principles of infection control including a focus on universal precautions, aseptic technique, methods of sterilization and regulatory issues.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7130 - Oral Radiology (0.1-5 Credits)**

Designed to introduce the students to basic radiology and to provide them with the necessary practical skills in preparation for clinical dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7131 - Oral Radiology Lab (0.1-5 Credits)**

The laboratory is designed to provide students with the necessary practical skills in preparation for clinical dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7132 - Diagnostic Radiology (0.1-5 Credits)**

This course in radiographic interpretation is for 3rd year dental and 2nd year ISP students and builds upon Oral Path 1 and 2. It includes radiographic interpretation, pathophysiology and management of osseous disorders of the jaw and TMJ.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 7140 - Pediatric Dentistry 1 (0.1-5 Credits)**

Basic principles of clinical diagnosis and treatment of the child patient are introduced. Developmental aspects of the formation of the craniofacial complex are applied to clinical management of space maintenance, pupal, restorative, and behavior management problems.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 7160 - Managing Your Student Practice (0.1-5 Credits)**

Course provides student with knowledge/skills necessary to make the transition from pre-clinic to clinical patient. Competencies established in infection control, documentation, record keeping, patient management, medico-legal/ethical implications, professionalism, organization skills, communication skills, auxiliary utilization, and equipment/ instrument utilization.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 7163 - Transition Clinic for ISP Students (0.1-5 Credits)**

A mini-orientation of clinical methods and practices and an introduction to the appropriate utilization of AxiUm software. This will include an overview of the SODM oral diagnosis and treatment planning processes, procedures and policies with oth clinical and didactic components.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 7201 - Independent Study (0.1-5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 7202 - Case Presentation 1 (0.1-5 Credits)**

Patient care with development of treatment plan through presentation by student to students and faculty.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 7203 - Fixed Prosthodontics (0.1-5 Credits)**

An advanced preclinical lecture course covering ceramic restorations along with discussion of pontic design and manipulation of gold solder. Dowel-core fabrication for endodontically treated teeth is covered. Clinical application is stressed and study of diagnosis and treatment planning is expanded.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 7204 - Fixed Prosthodontics Laboratory (0.1-5 Credits)**

Emphasis on ceramic restorations and procedures involved in fabricating fixed bridges in the anterior of appearance zone. Restorations include direct pattern fabrication of dowel-cores to building up badly broken-down or fractured teeth.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 7205 - Comprehensive Patient Care Clinic A (0.1-5 Credits)**

An introductory clinic for students providing comprehensive dental care refining technical skills, and learning patient management skills in a large group practice setting.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 7211 - Endodontics 1 Laboratory (0.1-5 Credits)**

This is a laboratory course in basic endodontic techniques utilizing extracted natural teeth as models of clinical treatment.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Summer.

**DISP 7212 - Removable Partial Prosthodontics 2 (0.9 Credits)**

Acquaints the student with principles of removable partial prosthodontics. Includes principles of partial denture design and fabrication as they relate to preventive dentistry.

Grading Basis: Letter Grade

**DISP 7213 - Removable Partial Prosthodontics Laboratory (0.5 Credits)**

Laboratory exercises which follow lectures of principles of partial removable prosthodontics. The student should be familiar with all the necessary steps in completion of a mandibular removable partial denture.

Grading Basis: Letter Grade

**DISP 7216 - Seminars in Restorative Dentistry (0.1-5 Credits)**

This course will present topics on operative dentistry relative to clinic patient care. Current materials and techniques as well as a review of fundamental concepts of operative dentistry will be taught.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

DISP 7220 - Pain Control 2 (Nitrous Oxide Analgesia) (0.1-5 Credits)  
Pharmacological indications and contraindications and prevention and treatment of complications relating to use of nitrous oxide is presented.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

DISP 7223 - Periodontology 3 Laboratory - Section 2 (0.1-5 Credits)  
This course runs parallel with Periodontology 3. This course is devoted to teaching the clinical skills necessary for the practice of periodontics within the context of a general dental practice.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

DISP 7231 - Assessment of the Dental Patient (0.1-5 Credits)  
Designed to introduce the student to the problem-oriented dental record and to a systems approach to the collection of health data. Includes both lecture and clinical phases.  
Grading Basis: Letter Grade with IP  
Typically Offered: Summer.

DISP 7232 - Clinical Oral Diagnosis (0.1-5 Credits)  
Clinical rotation in oral diagnosis.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

DISP 7240 - Pediatric Dentistry 2 (0.1-5 Credits)  
Basic principles of clinical diagnosis and treatment of the child patient are introduced.  
Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

DISP 7241 - Pediatric Dentistry 2 Lab (0.5 Credits)  
Grading Basis: Letter Grade

DISP 7300 - Case Presentation 2 (0.1-5 Credits)  
Presentations of actual treatment cases from the comprehensive patient care program are made by students and critiqued by the faculty.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

DISP 7301 - Comprehensive Care Clinic B (0.1-5 Credits)  
Continuation of Comprehensive Patient Care Clinic A with additional emphasis on the treatment of pediatric, orthodontic, geriatric, and endodontics cases.  
Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

DISP 7302 - Clinical Restorative (0.1-5 Credits)  
Combines clinical experience with diagnosis, treatment planning, restorative treatment. Students assigned a fully dentated/partially/fully edentulous patient needing restorative procedures. Restorative materials include amalgam, cast gold, and tooth-colored composite resins/porcelain. Emphasis on fabrication of restorations that function adequately.  
Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

DISP 7303 - Independent Study (0.1-5 Credits)  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

DISP 7310 - Implant Dentistry (0.1-5 Credits)  
Concepts and applications of tissue integrated prostheses are presented and discussed. Topics include an historical perspective of implant dentistry, surgical and prosthetic techniques, diagnosis and treatment planning analysis of current systems, qualifications and consent, and clinical applications.  
Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

DISP 7311 - Implant Dentistry Laboratory (1 Credit)  
Concepts and applications of tissue integrated prostheses are presented and discussed. Topics include prosthetic techniques, diagnosis and treatment planning, analysis of current systems, qualifications and consent, and clinical applications.  
Grading Basis: Letter Grade

DISP 7314 - Esthetic Dentistry (0.1-5 Credits)  
This course is designed to present information to students about those clinical dentistry procedures or concepts which are performed primarily to enhance dental esthetics.  
Grading Basis: Letter Grade with IP  
Typically Offered: Fall, Spring, Summer.

DISP 7318 - Critical Thinking and Patient Care Seminar (0.1-5 Credits)  
This course will provide the student with a practical application of the practice of evidence-based dentistry, critical thinking, formulation of clinical questions, critical appraisal of the literature and the translation of the biologic and social sciences to clinical patient care. Department consent required.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

DISP 7319 - Oral and Maxillofacial Surgery 1 (0.1-5 Credits)  
The diagnosis and treatment of oral and maxillofacial surgical problems including techniques for extraction of teeth alveoplasty, biopsy, management of infection, treatment of maxillary and mandibular fractures, and suturing techniques.  
Grading Basis: Letter Grade with IP  
Typically Offered: Summer.

DISP 7320 - Oral and Maxillofacial Surgery 2 (0.1-5 Credits)  
The diagnosis and treatment of oral and maxillofacial surgical problems including techniques for extraction of teeth alveoplasty, biopsy, management of infection, treatment of maxillary and mandibular fractures, and suturing techniques.  
Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

DISP 7321 - Periodontology 4 (0.1-5 Credits)  
This course is devoted to making the student familiar with the surgical management of periodontal disease. The indications and rationale for resection, reconstructive and mucogingival procedures are discussed.  
Grading Basis: Letter Grade with IP  
Typically Offered: Summer.

DISP 7322 - Oral Facial Pain (1.2 Credits)  
This course is designed to acquaint the student with the evaluation, diagnosis, management, and pathology of the temporomandibular joint. Emphasis is on the multidisciplinary nature of treating disorders of TMJ.  
Grading Basis: Pass/Fail Only

**DISP 7323 - Dental Pain and Emergencies (0.1-5 Credits)**

This course covers the diagnostic and treatment considerations for the management of the patient in pain and other emergency problems encountered in general dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 7328 - Clinical Periodontics (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 10.

Typically Offered: Fall.

**DISP 7330 - Oral Pathology I (0.1-5 Credits)**

This course is a comprehensive review of the fundamental mechanisms and general principles of oral pathology, including developmental disturbances of oral and para-oral structures, benign and malignant tumors and cysts.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 7331 - Clinical Oral Diagnosis (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 7335 - Clinical Fixed Prosthodontics (0.1-5 Credits)**

Clinical rotation in fixed prosthodontics. Requirement: Department Consent

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 7336 - Clinical Operative Dentistry (0.1-5 Credits)**

Clinical rotation in operative dentistry. Requirement: Department consent

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 7337 - Clinical Removable Prosthodontics (0.1-5 Credits)**

Clinical rotation in removable prosthodontics. Requirements: Department consent

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 7340 - Pediatric Dentistry 3 (0.1-5 Credits)**

Course emphasizes diagnostic/treatment considerations for pediatric patients. Lecture materials by faculty/ case presentations utilized to facilitate working knowledge of treatment planning/procedures. Sedation techniques for behavior problems discussed as well as traumatic injuries, hospital dentistry and medically compromised patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 7360 - Behavioral Health, Gerontology and Geriatrics (0.1-5 Credits)**

Developing foundational knowledge in mental health/illness (mental health literacy), geriatrics and care for adult patients with developmental disabilities. Additionally at enhancing skills in building rapport/motivating patients for adoption of health behaviors, through lecture and two standardized patient interview experiences.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 7380 - Dentistry for Adults with Special Health Care Needs (0.1-5 Credits)**

To introduce students to medical problems/disabilities affecting patients who will be treated in the School's Special Care Clinic. This includes foundational knowledge in the features of common congenital disabilities, proper communication techniques, and assessment of the oral health treatment strategies most compatible for the patient.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 7708 - Dental Materials Seminar (0.1-10 Credits)**

The course is aimed to be an interactive session where the students will be divided into teams and will be asked to create presentations on clinical applications of dental materials.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 7710 - Behavioral Health (0.1-5 Credits)**

This course develops foundational knowledge in mental health/disorders, and enhances skills in building rapport and motivating patients to change health behaviors, through lecture and two standardized patient interviews. Reviews managing anxious or fearful patients, and communication skills including cross-cultural communication.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

**DISP 7711 - Geriatrics and Gerontology (0.1-5 Credits)**

This course addresses clinical considerations for older adult patients and provides a basic understanding of the physiologic, pharmacologic, psychological and social aspects of aging. Reviews pathological changes that affect oral health treatment of dental diseases and patient management.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

**DISP 8100 - Case Presentation 3 (0.1-5 Credits)**

Patient care with development of treatment plan through presentation by student to students and faculty.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8101 - Comprehensive Patient Care Clinic C (0.1-5 Credits)**

Continuation of Comprehensive Patient Care Clinic B with activities focusing on independence, student preparedness, technical skills, patient management and professionalism.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8104 - Independent Study (0.1-5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8105 - Evidence-Based Topical Reviews (0.1-5 Credits)**

Introduction to concepts of evidence based dentistry and hierarchy of evidence for clinically relevant topics. Students develop clinically relevant queries and submit PICO questions, bibliographies, publication critiques, and make presentations regarding the evidence for their topic to their classmates/faculty.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Summer.



**DISP 8106 - Advanced Clinical Medicine (0.6 Credits)**

Provides students with advanced training in clinical medicine and its effects on dental practice.

Grading Basis: Pass/Fail Only

Typically Offered: Spring.

**DISP 8110 - Restorative Dentistry Advanced Clinical Training Service Seminar (0.1-5 Credits)**

This seminar-type course is a broad discussion of advanced restorative techniques for complex prosthodontic rehabilitation or reconstruction cases. Specific topics such as anesthetics, TMJ considerations and materials application will be included.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8112 - Clin Oper Dentistry (1 Credit)**

Grading Basis: Letter Grade

**DISP 8113 - Clin Remov Pros (1 Credit)**

Grading Basis: Letter Grade

**DISP 8116 - Critical Appraisal of Translational Literature (0.1-5 Credits)**

The purpose of this course is to develop proficiency in critical thinking and problem solving as it pertains to scientific inquiry and research methodology in translational research. Department consent required

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8120 - Endodontics 3 (0.1-5 Credits)**

This course addresses topics of diagnosis and management of a variety of endodontic treatment problems such as periapical pathosis, traumatic injuries, surgical intervention, and bleeding.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8121 - Endodontics 4 (0.1-5 Credits)**

This is an advanced course in endodontics clinical practice. Endodontic implants, autogenous transplants, advanced surgical concepts and controversies will be included.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8123 - Clinical Endodontics (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8124 - Clinical Periodontics (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8125 - Clinical Oral Maxillofacial Surgery (0.1-5 Credits)**

This is a clinical oral surgery experience including routine and surgical removal of erupted and impacted teeth and use of intravenous sedation techniques.

Grading Basis: Letter Grade with IP

Typically Offered: Spring, Summer.

**DISP 8129 - The Medically Complex Patient in your Practice (0.1-10 Credits)**

Course provides clinical basis for assessment of patient's medical history, including systemic disease/physical findings. Directs student from normal interpretation to systemic pathophysiology with varying degrees of severity, allowing for competent treatment in the hospital and clinic settings.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8130 - Clinical Oncology (0.1-5 Credits)**

An assignment of one week for students includes lectures, seminars, tumor boards, surgery rounds, and radiation therapy conferences on a health professional approach to the prevention, diagnosis, and treatment of head and neck neoplasia.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8131 - Oral Pathology 2 (0.1-5 Credits)**

This course is a continuation of DISP 7330.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8133 - Clinical Oral Diagnosis (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8134 - Clinical Operative Dentistry (0.1-5 Credits)**

Clinical rotation in operative dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8135 - Clinical Operative Dentistry (0.1-5 Credits)**

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8136 - Clinical Fixed Prosthodontics (0.1-5 Credits)**

Clinical rotation in fixed prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8137 - Clinical Removable Prosthodontics (0.1-5 Credits)**

Clinical rotation in removable prosthodontics

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8140 - Clinical Pediatric Dents (1.5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8141 - Clin Pediatric Dent (0.5 Credits)**

Grading Basis: Letter Grade

**DISP 8160 - Dental Ethics and Jurisprudence (0.1-5 Credits)**

This course prepares students for appropriate conduct consistent with the legal and ethical principles of the dental profession. It lays the foundations for each student's continued growth with respect to the legal and ethical obligations of professionalism.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8161 - Practice Management (0.1-5 Credits)**

Understanding of basic management activities which must be continuously carried out in private practice. Primary focus on financial records, billing and collections, professional insurance, fees, clinical records, third party relations, case presentation, practice analysis, dental practice marketing, and personnel management.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8162 - Dental Practice Planning (0.1-5 Credits)**

Teaches students to make decisions in planning / implementation of private practice. Primary focus on alternative practice arrangements, business formats, dental associateships, buying practice, designing / equipping dental office, financing a practice, leases, debt management, personal/ professional insurance, and selecting professional advisors.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8176 - Community Public Health 3 (0.1-5 Credits)**

This course exposes students to the public aspects of oral health care. It identifies the significance and scope of public health programs at all levels of government and relates the public activities to the private practice of dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DISP 8200 - Case Presentation 4 (0.1-5 Credits)**

Patient care with development of treatment plan through presentation by student to students and faculty.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 8201 - Comprehensive Patient Care Clinic D (0.1-5 Credits)**

Continued provision of Comprehensive Patient Care Clinic C with emphasis on effective practice management.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

Typically Offered: Summer.

**DISP 8202 - Clinical Restorative (0.1-5 Credits)**

Combines clinical experience with diagnosis, treatment planning, restorative treatment. Students assigned a fully dentated/partially/fully edentulous patient needing restorative procedures. Restorative materials include amalgam, cast gold, and tooth-colored composite resins/porcelain. Emphasis on fabrication of restorations that function adequately.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

Typically Offered: Summer.

**DISP 8203 - Special Care Clinic A (0.1-5 Credits)**

This course is designed to introduce students to provide dental treatment to the special needs population

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8204 - Independent Study (0.1-5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 8206 - Special Care Clinic B (0.1-5 Credits)**

This course is designed to introduce dental students to provide dental treatment to the special needs population

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 8207 - Special Care Clinic C (0.1-5 Credits)**

This course is designed to introduce dental students to provide dental treatment to the special needs population

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 8209 - Advanced and Digital Prosthodontics (0.1-5 Credits)**

This course will address various advance prosthodontic topics; beginning with CAD/CAM dentistry and digital workflow, then removable partial denture designs, occlusal concepts, diagnosis and treatment planning, esthetics, and cementation for fixed prosthodontics restorations.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 8210 - Clin Prosth Seminar (0.6 Credits)**

Grading Basis: Pass/Fail Only

**DISP 8220 - Clinical Endodontics (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 10.

Typically Offered: Summer.

**DISP 8222 - Clinical Periodontics (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

Typically Offered: Summer.

**DISP 8223 - Clinical Oral Maxillofacial Surgery (0.1-10 Credits)**

Clinical rotation in oral maxillofacial surgery.

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

**DISP 8225 - Clinical Fixed Prosthodontics (0.1-5 Credits)**

Clinical rotation in fixed prosthodontics. Requirement: Department Consent

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 8226 - Clinical Operative Dentistry (0.1-5 Credits)**

Clinical rotation in operative dentistry. Requirement: Department consent

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 8227 - Clinical Removable Prosthodontics (0.1-5 Credits)**

Clinical rotation in removable prosthodontics. Requirement: Department consent

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DISP 8231 - Clinical Oral Diagnosis (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 10.

Typically Offered: Summer.

**DISP 8240 - Clinical Pediatric Dentistry (0.1-5 Credits)**

This course provides experience in developmental, behavioral, preventive, diagnostic, and therapeutic care on a comprehensive basis for pediatric patients in the primary, transitional, and permanent dentition phases and patients with special health needs.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 8251 - Clinical Orthodontics (0.1-5 Credits)**

This is a continuation from initial clinical courses providing further experience in developmental, behavioral, preventive, diagnostic, and therapeutic care on a comprehensive basis for pediatric patients in primary, transitional, and permanent dentition phases and patients with special health care needs. Requirement: Department Consent.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Summer.

**DISP 8258 - Diagnosis of Orofacial Lesions (0.5-10 Credits)**

Presentations of oral and maxillofacial lesions and anomalies from the comprehensive patient care program will be made by the students and critiqued by the faculty. Clinical history, detailed description, differential diagnosis and treatment/prognosis will form the basis of this interactive discussion.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DISP 8300 - Case Presentation 5 (0.1-5 Credits)**

Patient care with development of treatment plan through presentation by student to students and faculty.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8301 - Comprehensive Patient Care Clinic E (0.1-5 Credits)**

Advanced comprehensive patient care including applied principles of practice management.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 8302 - Clinical Restorative (0.1-5 Credits)**

Combines clinical experience with diagnosis, treatment planning, restorative treatment. Students assigned a fully dentated/partially/fully edentulous patient needing restorative procedures. Restorative materials include amalgam, cast gold, and tooth-colored composite resins/porcelain. Emphasis on fabrication of restorations that function adequately.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 8303 - Independent Study (0.1-5 Credits)**

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8310 - Advanced Implant Prosthodontics Seminar (0.1-5 Credits)**

Students gain experience in clinical use of cast restorations. Emphasis is placed on the fabrication of restorations that are to function adequately in the patient's biologic environment.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8321 - Clinical Endodontics (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 8323 - Clinical Periodontics (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8325 - Clinical Fixed Prosthodontics (0.1-5 Credits)**

Clinical rotation in fixed prosthodontics. Requirement: Department consent

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 8326 - Clinical Operative Dentistry (0.1-5 Credits)**

Clinical rotation in operative dentistry. Requirement: Department consent

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8327 - Clinical Removable Prosthodontics (0.1-5 Credits)**

Clinical rotation in removable prosthodontics. Requirement: Department consent

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DISP 8328 - Clinical Oral Radiology (0.1-5 Credits)**

Clinical rotation in oral radiology.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8330 - Clinical Oral Diagnosis (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8350 - Orthodontics (0.1-10 Credits)**

Early physical and emotional development of the child is presented, emphasizing prenatal and neonatal influences on the craniofacial complex. The etiology and classification of malocclusion along with the development of disturbances of hard and soft tissues are introduced.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Summer.

**DISP 8351 - Orthodontics 2 (0.5 Credits)**

Grading Basis: Pass/Fail with IP

**DISP 8352 - Orthodontics 3 (1.4 Credits)**

Grading Basis: Letter Grade

**DISP 8355 - Clinical Emergencies (0.1-5 Credits)**

The patient who presents with oral pain is evaluated and relief of discomfort is provided by the student under the supervision of the dental faculty. Department Consent Required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DISP 8400 - Elective - Advanced Readings in Pediatric Dentistry (0.1-5 Credits)**

Elective seminar offered to interested ISP students. Each week a different topic in pediatric dentistry will be covered. Students will be expected to read and discuss relevant, current, peer reviewed journal articles and to complete one final assignment.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 8402 - Trifinio Guatemala ISP Elective (0.1-5 Credits)**

This course is offered to eligible students who wish to travel for one week to Trifinio, Guatemala to provide comprehensive dental care at the CU Center for Global Health's Trifinio Health Clinic. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 8405 - Perio After Dark Elective (0.1-5 Credits)**

This course is designed to make the student more familiar with the normal periodontium, to supplement current surgical periodontics knowledge, and to reiterate important concepts regarding the epidemiology, etiology, and pathogenesis of periodontal disease.

Requirement: Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 8409 - Culinary Dental Medicine Elective (0.1-5 Credits)**

Students will work alongside culinary students in the kitchen for hands-on culinary and nutrition training. In addition to preparing recipes and discussing the health benefits, cost, etc. of the recipes, students will also complete modules, readings and discussions about a variety of nutrition topics and nutrition-related diseases. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**DISP 8410 - Refugee and Immigrant Health (0.1-5 Credits)**

This course addresses the very timely issue of refugees and immigrants. Students will learn the integration and screening process of refugees, the common physical (including oral) and mental health issues that are prevalent in the refugee community, the role of various playes as well as opportunities to get involved.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 8411 - Introduction to Global Health Elective (0.1-5 Credits)**

This course consists of 6 seminars covering various global health topics including: global oral health, building a sustainable global oral health program, safe drinking water and GI illnesses, child nutrition, global health policy making and system challenges, and cultural awareness.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 8412 - Community Based Clinical Dentistry ISP Elective (0.1-10 Credits)**

Elective for advanced standing international students to participate in the ACTS Program in a non-metropolitan community-based educational site. Objectives of clinical experiences vary according to site assignment and include rural community health centers, psychiatric hospitals, migrant health care or private practice locations.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 8612 - Orofacial Pain (0.1-5 Credits)**

This course is designed to acquaint the student with evaluation, diagnosis, arrangement and pathology of the temporomandibular joint. Emphasis is on the multidisciplinary nature of treating disorders of TMJ.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DISP 9111 - Graduate Periodontics Dental Student Assisting Elective (0.1-10 Credits)**

Provides dental students exposure to the periodontal specialty of dentistry. Provides dental students exposure to medically complex patients and how these patients are treated. It allows observation in complex treatment planning, surgical & non-surgical periodontal procedures, simple & complex extractions, & intravenous moderate sedation.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DISP 9112 - Blending the Art of Observation and Listening (0.5-10 Credits)**

Observation, active listening, accurate description and interpretation are essential clinical skills. To develop these skills, visual and performance art provide a creative, safe and culturally diverse environment for refining these abilities. Participation in experiential and expert guided activities in galleries frame the experience.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

## Dental School (Prior) (DSDS)

**DSDS 6655 - Cln Soph Clerkship (5 Credits)**

Grading Basis: Letter Grade

**DSDS 7759 - Cln Junior Clerkship (0.1-10 Credits)**

Grading Basis: Letter Grade

**DSDS 8855 - Cln Senior Clerkshp Fall (3.3 Credits)**

Grading Basis: Letter Grade

**DSDS 8857 - Cln Senior Clerkship (0.1-7 Credits)**

Grading Basis: Letter Grade

**DSDS 8859 - Cln Senior Clrkshp: Spg (2.8 Credits)**

Grading Basis: Letter Grade

## Dermatology (DERM)

**DERM 6660 - Career Elective in DERM (1 Credit)**

This course is designed to provide an introduction into the field of dermatology. Students will shadow a dermatologist in clinic to get an idea of the scope of practice in dermatology which encompasses medical dermatology, surgery and dermatopathology.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DERM 8000 - Dermatology Clinical Elective (4 Credits)**

This course is designed to provide a broad overview of medical, surgical and pediatric dermatology. Students will become familiar with the differential diagnosis and treatment of common skin disease, and procedural dermatology including skin biopsies and cryosurgery.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**DERM 8001 - Advanced Dermatology (8 Credits)**

This course is designed to provide a broad overview of medical, surgical and pediatric dermatology. Students will become familiar with the differential diagnosis and treatment of common skin disease, and procedural dermatology including skin biopsies and cryosurgery.

Requirements: Instructor Consent

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**DERM 8200 - Course Work Away in Colo (4-32 Credits)**

Grading Basis: Conversion

Repeatable. Max Credits: 32.

**DERM 8300 - DERM Elective Away (4-8 Credits)**

This elective will be held at a site in Colorado or another state.

International electives not allowed.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**DERM 8600 - Research in Dermatology (4-16 Credits)**

4,6, 8 wks. Max: 5. Research elective allows the student to design and implement a basic science, clinical or epidemiologic research project relevant to dermatology or cutaneous biology. Students are expected in research seminars and to present their results. Prereq: Course Director approval required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**DERM 8630 - DERM Research Away (4-16 Credits)**

This research elective will be held at a site in Colorado or another state.

International electives not allowed.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.



## Diagnostic & Developmental (DSDD)

### DSDD 5500 - Infection Control (0.1-5 Credits)

This course reviews the fundamental principles of infection control including a focus on universal precautions, aseptic technique, methods of sterilization, and regulatory issues.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

### DSDD 7703 - The Medically Complex Patient in your Practice (0.1-10 Credits)

Course provides clinical basis for assessment of patient's medical history, including systemic disease/physical findings. Directs student from normal interpretation to systemic pathophysiology with varying degrees of severity, allowing for competent treatment in the hospital and clinic settings.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## Education Research Methods-CSU (EDRM)

### EDRM 7010 - Applied Linear Models (3 Credits)

General Linear model applications in educational research emphasizing conceptual understanding and characteristics of non-experimental designs. Prereq: EDRM 606.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

### EDRM 7030 - Appl Longitudinal Data Analysis (3 Credits)

Methods and empirical applications of individual growth modeling and discrete-time event history analysis in educational research. Prereq: EDRM 701

EDRM 701

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

## Emergency Medicine (EMED)

### EMED 6620 - A Historical Survey of Pharmacology and Toxicology (1 Credit)

The objective of this course is to illustrate basic pharmacological and toxicological principles using case examples. The course will consist of a series of lectures that will use historical events to demonstrate basic toxicological and pharmacological principles and the clinical effects of poisons. For Phase II Medical Students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

### EMED 6624 - Introduction to Wilderness Medicine (1 Credit)

A didactic course to review basics of wilderness and environmental medicine, including high altitude, hypothermia, frostbite, dive medicine, and expedition medicine PLUS a morning with Rocky Mountain Rescue in Boulder learning rescue techniques and skills.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

### EMED 6626 - Pre-Hospital Medicine (1 Credit)

Min:10 Max:20. Enrollment restricted to (Emergency Medicine Interest Group) EMIG only. Students required to participate in 1 ten hour ride along shift with Denver Paramedic Division 911 ambulances, attend required Introductory lecture on pre-hospital medicine and submit 1 evaluation from ambulance ride.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

### EMED 6627 - Introductions to Emergency Medicine and Trauma (1 Credit)

This rotation is designed for the senior medical student who may be applying to primary care or other specialties who wants to gain exposure to emergency medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

### EMED 6628 - Critical Care Transport Med (1 Credit)

The student will attend one lecture to orient them to the basic principles critical care transport and flight medicine as well as an extended orientation to the helicopter at St. Anthony's. During their 12-hour day with Flight for Life they will be part of the team of providers to respond to scenes or to other facilities for the transportation of critical patients. At the end of the course there will be a wrap-up session where we will discuss their unique experiences and reflect on what they have learned.

Prerequisite: EMED 6626 Pre-Hospital Medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

### EMED 6629 - Emergency Med Skills (1 Credit)

This course provides 48 hours of clinical work with an EMED attending physician with the purpose of exposing the student to the EMED environment and teaching procedural skills necessary for basic clinical care in preparation for an international experience. Restrictions: Approval by Course Director.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

### EMED 6630 - Emergency Medicine in South Africa (8 Credits)

This is a 6 week clinical experience, students work in the Emergency Department of a public hospital in Cape Town, South Africa and contribute to ongoing research projects done in conjunction with Stellenbosch University. Prerequisite: Successful completion of EMED 6629. Course Restrictions: Course Director Approval.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

### EMED 6631 - Wilderness Advanced First Aid (1 Credit)

Wilderness Advanced First Aid covers skills and applied knowledge to respond to medical emergencies in austere environments. In addition, it provides students an introduction and exposure to the art of teaching and instruction.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 5.

Typically Offered: Spring.

### EMED 8004 - Emergency Med Univ Hosp (4-8 Credits)

2-4 wks. Max:4. Students are primary caregivers in a level II trauma center with a variety of patients and individual teaching time with attendings and senior residents. An excellent experience for students seeking instruction in the assessment and management of the undifferentiated patient.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.



**EMED 8005 - Emergency Medicine DHMC (8 Credits)**

This rotation is designed for the senior medical student who may be applying to primary care or other specialties who wants to gain exposure to emergency medicine.

Grading Basis: Medical School

Typically Offered: Spring.

**EMED 8006 - Advanced Emergency Medicine (8 Credits)**

4 wks. Max:4. Student is primary caregiver for acutely ill/injured patients at DHMC Emergency Department, supervised by Emergency Medicine Staff. Daily lectures in traumatic/medical emergencies, conferences, "board rounds". Orientation, first day, 7:30 a.m. Admin Conf room.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Summer.

**EMED 8007 - Emergency Medicine Career Elective – Anschutz Campus (8 Credits)**

Students will rotate through Emergency Departments at University Hospital and Children's Hospital Colorado to gain education through a broad range of Emergency Medicine experiences. This course complements and does not replace 8006 and is offered during the summer of 2020. Emergency Medicine-Bound Senior Medical Students, Course Director Approval.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

Typically Offered: Summer.

**EMED 8008 - Emergency Medicine Boot Camp (2-4 Credits)**

Through workshops and simulation, career-bound Emergency Medicine students will gain confidence in the approach to, and management of critical illness. Students will acquire successful approaches to cross-cover situations, patient decision making capacity, application of technology and mental preparation in advance of internship. Requisite: Emergency Medicine Career Bound Senior Medical Students

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

Typically Offered: Spring.

**EMED 8010 - Climate Change and Medicine (4 Credits)**

Climate change has profound impacts on health including food insecurity, degraded air quality, civil unrest, and changes in vector-borne disease.

This course explores the physiologic, ecologic and social interactions resulting in these impacts and provides a foundation in climate med and skills in science communication, policy and advocacy.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**EMED 8011 - Advanced EMED URM (8 Credits)**

Purpose: Guide and support medical students from URM groups who have an interest in pursuing EM. Students will complete a 2-week clinical rotation at DHMC and a 2-week research rotation at the University of Colorado.

Grading Basis: Medical School

Typically Offered: Fall, Summer.

**EMED 8012 - Virtual EM DHREM (4 Credits)**

An entirely virtual EM education experience for senior medical students pursuing EM as a career. Through virtual platforms and engaging interactive education sessions with our residents and EM faculty from Denver Health and the University of Colorado we will explore elements and themes that represent the essence of Emergency Medicine. Completion of major clinical year.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**EMED 8017 - Peds Emergency DHMC (4-8 Credits)**

2 or 4 wks. Max: 2. Students will serve as the primary caregivers in the Denver Emergency Center for Children at Denver Health, a pediatric emergency department treating 30,000 children annually. Students will be fully integrated into the team, treating children with acute and urgent illnesses.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**EMED 8024 - Clinical Toxicology (8 Credits)**

4 wks. Max:2. Provides an introduction to medical toxicology at the RMPD. Student will participate in clinical service including telephone consultation, fundamentals of environmental toxicology, public health concerns, and occupational toxicology. Each student will make one presentation toward the end of their rotation.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**EMED 8030 - Rural Emergency Medicine (4-8 Credits)**

A continuation of the Emergency Care Clerkship, currently a two-week required component of Phase III study. This course is for students who seek more in-depth knowledge and additional clinical skills, relating to Emergency Care in the rural setting.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 84.

Typically Offered: Fall, Spring, Summer.

**EMED 8031 - Wilderness Medicine (4 Credits)**

2 wks. Min:10/Max:25. Students will learn core wilderness medicine principles in small group and lecture-based formats then apply their knowledge to scenarios in wilderness settings. The course will spend the first week near Estes Park and the second week near Moab, UT. Restrictions: Must be a 4th year student in good academic standing. Not available to externs. Variable fee. Course offered sections 47 and 48 only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**EMED 8050 - Emergency Medicine – Colorado Springs (4-8 Credits)**

Students will work with Emergency Medicine clinical faculty seeing patients in Colorado Springs' community-based Emergency Dept. Student will be exposed to the full range of Emergency Medicine. Course offered all semesters except sections 9-13 in 4th year.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**EMED 8100 - EMED Elective Away (4-8 Credits)**

This Emergency Medicine elective will be held at a site in Colorado, another state or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be approved by Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**EMED 8600 - Research EMED (4-24 Credits)**

Designed for students interested in Emergency Medicine research.

Tailored research experiences in the Denver area can be established in a variety of settings. Speak with course director to design this elective. Offered 4, 8, or 12 weeks. Max enroll: 4.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**EMED 8630 - EMED Research Away (4-8 Credits)**

This Emergency Medicine research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

## Endodontics (DSEN)

**DSEN 6610 - Endodontics 1 Lecture (0.1-5 Credits)**

Course is an introduction to basic endodontics therapy. The philosophy of endodontics treatment and therapeutic techniques is discussed.

Mechanisms of inflammation and repair are related to decisions in clinical practice.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSEN 6611 - Endodontics 1 Laboratory (0.1-5 Credits)**

This is a laboratory course in basic endodontic techniques that utilizes simulated human teeth as models for providing clinical treatment.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSEN 6612 - Endodontics 2 Lecture (0.1-5 Credits)**

Course is an introduction to basic endodontics therapy. The philosophy of endodontics treatment and therapeutic techniques is discussed.

Mechanisms of inflammation and repair are related to decisions in clinical practice.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSEN 6613 - Endodontics 2 Laboratory (0.1-5 Credits)**

This is a laboratory course in basic endodontic techniques that utilizes simulated human teeth as models for providing clinical treatment.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSEN 7011 - Clinical Endodontics 1 (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSEN 7022 - Clinical Endodontics 2 (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSEN 7033 - Clinical Endodontics 3 (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSEN 7712 - Endodontics III (0.1-5 Credits)**

Course addresses topics of diagnosis and management of a variety of endodontic treatment problems such as periapical pathosis, traumatic injuries, surgical intervention, and bleeding.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSEN 8011 - Clinical Endodontics 4 (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSEN 8022 - Clinical Endodontics 5 (0.1-5 Credits)**

Clinical rotation in endodontics.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSEN 8810 - Endodontics 4 (0.1-5 Credits)**

This is an advanced course in endodontics clinical practice. Endodontic implants, autogenous transplants, advanced surgical concepts and controversies will be included.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## Env and Radiog Health Sci-CSU (ERHS)

**ERHS 5010 - Biological Basis of Public Health (2 Credits)**

Biological basis of underlying major public health problems, focusing on risk factors, pathogenesis, and pathophysiology, plus a review of the anatomy and physiology of selected major organ systems and associated diseases, clinical terminology, the underlying biological mechanisms and biological impact of disease in public health.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall.

**ERHS 5350 - R Programming for Research (3 Credits)**

In-depth instruction on data collection, data management, programming and visualization using data examples relevant to academic research.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**ERHS 5380 - Geographic Information Systems and Health (3 Credits)**

This course will familiarize students with applications of geographic information systems (GIS) in public health. Topics include a basic understanding of geodatabases, geocoding, production of effective disease maps, global positioning systems (GPS), visualization, classification and accuracy assessment. Prerequisite: ERHS 5320 or permission of instructor

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**ERHS 5600 - Health Impact Assessment (2 Credits)**

Application of a Health Impact Assessment approach to systematically judge the potential health effects of a policy or project and the distribution of those effects within the population.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall.

**ERHS 5730 - Design and Conduct of Epidemiologic Research (2 Credits)**

This course prepares students to design and implement an epidemiologic study from the development of a research question and study design through data analysis and dissemination. Prerequisites: Introductory Epidemiology course or equivalent.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Spring.

**ERHS 5810 - Experimental Course - ERHS (1-5 Credits)**

Experimental course in environmental and radiological health sciences.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**ERHS 6380 - Geospatial Analysis for Environmental Health (3 Credits)**

Introduction to acquisition, organization and analysis of geospatial data relevant to public health. Data sources covered include ground-based air quality and weather sensors, remote sensing (satellite) products, climate and weather model output and data on water quality, traffic and mobility, and housing and socio-demographics.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall.

**ERHS 6400 - CSU Advanced Epidemiology (3 Credits)**

In-depth exploration of advanced epidemiologic methods. Prereq: ERHS 5320.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**ERHS 6580 - Environmental/Occupational Epidemiology (2 Credits)**

Epidemiologic analyses of effects of exposure to environmental and occupational health hazards. Prereq: ERHS 5320.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**ERHS 6930 - Research Seminar-Epidemiology (1 Credit)**

Presentation of student research and discussion of publications from scientific literature.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**ERHS 6950 - Independent Study - Epidemiology (1-5 Credits)**

Specialized study in epidemiology under supervision of faculty.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**ERHS 7320 - Advanced Epidemiological Analysis (2 Credits)**

Course will complement the student's training in epidemiological methods and statistical regression methods, providing the opportunity to implement their theoretical expertise through designing and conducting advanced epidemiologic research analysis, implemented through a statistical programming language. Prerequisite: Epidemiologic Methods, Advanced Epidemiology, R Programming or SAS and Epidemiologic Data Management, Design and Data Analysis or equivalent courses or experience.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall.

**ERHS 7400 - Advanced Epidemiology Methods (2 Credits)**

Understanding the theoretical basis of currently used epidemiologic methods and also to help acquire an understanding of the process of developing novel approaches. Topics include methods for analysis of the causal effects of time-varying exposures, mediation, instrumental variable analysis, natural experiments and other methods. Prerequisite: Epidemiologic Methods, Advanced Epidemiology, Design and Data Analysis for Researchers I and II or equivalent courses or experience.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall.

## Environ Health and Occupational Health (EHOH)

**EHOH 6601 - Public Health Concepts for Non-MPH (1 Credit)**

This course fulfills the basic public health knowledge requirement for students in MS, PhD and DrPH programs. When taken in conjunction with PUBH 6600 and EPID 6630, all knowledge objectives required by the Council on Education for Public Health for public health students are fulfilled. This course cannot be applied toward the MPH degree.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EHOH 6614 - Occupational and Environmental Health (3 Credits)**

Students will learn about the relationship between the environment, workplace and health. Topics include facets of industrial hygiene, air and water pollution, radiation monitoring, toxicology, occupational medicine, policy, environmental justice and sustainability. Methods include risk assessment, GIS and epidemiology.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EHOH 6616 - Environmental & Occupational Toxicology (3 Credits)**

Presents an overview of information needed to assess the relationship between the environment, workplace and health. Topics include facets of industrial hygiene, air and water pollution, radiation monitoring, toxicology studies, clinical occupational medicine and biologic monitoring.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 6617 - Environmental & Occupational Epidemiology (3 Credits)**

Overall goal of course is to provide a background in epidemiology of diseases related to environmental and/or occupational exposures. Application of epidemiologic research methods to determine and prevent such diseases will be discussed. Prerequisite: EHOH 6614

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 6618 - Environmental Health Policy and Practice (3 Credits)**

Examine the environmental policy-making and planning and regulatory and non-regulatory approaches to controlling environmental hazards. A wide variety of topics will be introduced with cross-disciplinary perspectives ranging from water and air to the built environment and climate change. Prereq: EHOH 6614.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 6619 - Environmental Exposures and Health Effects (3 Credits)**

This course integrates earth sciences, exposure sciences and biological sciences to understand conditions and circumstances of recent env/occ exposure events, the methods to assess exposures; and related health impacts. Case studies and laboratory exercises are used to guide instruction. Prereq: EHOH 6614. Coreq: EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**EHOH 6620 - Risk Analysis & Decision Making (3 Credits)**

A general survey of risk analysis and risk-based decision making covering the basic components of risk assessment, communication, and management and how they are applied in various fields. Prerequisite: EHOH 6614

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**EHOH 6621 - GIS for Public Health Research/Practice (3 Credits)**

This course will expose students to the fundamentals of Health Geographic Information Systems (GIS), including hands-on software experience, across a variety of application areas in the health sciences, particularly focusing on integrating GIS technologies appropriately into research design and practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Summer.

**EHOH 6622 - Intro to Public Health Emergency Preparedness (3 Credits)**

This introductory course focuses on the public health role in community disaster preparedness. It explores the relationship between 10 essential public health services and how these services support the ability to prevent, respond, and rapidly recover from public health emergencies.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Summer.

**EHOH 6623 - Geographic Perspective on Global Health (1 Credit)**

This course will review geographic concepts and tools taking a regional, holistic approach to understanding the world's peoples, places, and processes in order to lay a foundation for an improved knowledge of global health.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Summer.

**EHOH 6624 - Infectious Diseases, Environmental Contexts (3 Credits)**

Students will study the impact of environmental factors, from sanitation to climate, on infectious diseases. Topics include infectious disease emergence, water- and vector-borne diseases, zoonoses and analytic approaches for evaluating environmental determinants of infectious disease. Prerequisite: Students must have completed EPID 6630 and EHOH 6614.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**EHOH 6625 - International Disasters and Global Humanitarianism (3 Credits)**

This course will unveil the unique context of disasters at the international level. It will examine competing perspectives on both the human and natural causes of disaster that trigger disaster response and humanitarian action, discuss the actors in the international disaster network, and challenges in response to global emergencies.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**EHOH 6626 - Public Health Emergency and Disaster Responder (3 Credits)**

This course will advance the skill set for emergency public health professionals by examining and applying the challenges of collaborating, coordinating and interfacing with internal and external emergency management response partners through case studies and an emphasis on practical applications of public health emergency response skills

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Summer.

**EHOH 6627 - Water Quality and Public Health (3 Credits)**

This course covers public health concerns involving water quality issues ranging from contamination of drinking water to socio-political issues that impact accessibility to clean water. The fundamental concept is that access to clean water is a basic human right.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**EHOH 6628 - Health Protection/Promotion in the Workplace. (3 Credits)**

Course introduces the principles of Total Worker Health (TWH), an approach to address improving the health, safety, and well-being of workers. TWH is a transdisciplinary field in public health practice and research. Students have the opportunity to critically consider the research basis for TWH and develop applied skills.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring.

**EHOH 6629 - Introduction to Occupational Safety and Ergonomics (2 Credits)**

This course will form a foundation for understanding of workplace factors important in the prevention of injuries. Students will recognize safety and ergonomic hazards that may lead to injury as well as learn strategies to abate these hazards.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**EHOH 6630 - EOH Interdisciplinary Symposium (2 Credits)**

Interdisciplinary field and consultation experience for students interested in understanding workplace health protection and promotion. Students apply principles and knowledge to effectively protect and promote occupational health and safety by providing consultative services to front range businesses in complex occupational settings. Requisite: Restricted to Occupational Medicine residents. MPH students with instructor permission.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.



**EHOH 6631 - Public Health and Occupational Medicine Seminar (1 Credit)**

This course is designed to capture the activities of Occupational and Environmental Medicine residents as advanced, integrated practice of medical and public health in a structured manner, providing a mechanism for resident and programmatic evaluation and academic credit toward the resident MPH degree. Prerequisite: Occupational and Environmental Medicine resident or permission of course director. Instructor consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EHOH 6632 - Occupational Health Policy and Practice (3 Credits)**

OEM residents need to develop knowledge and skills in policy development and implementation in the field of Occupational Health. This course will develop deep comprehension of the Colorado Workers' Compensation system and the Division's efforts to comply with the legislative charge to assure appropriate medical care at a reasonable cost. Requisite: Occupational and Environmental Medicine resident or permission of course director; completion of the Division of Workers Compensation Level II Accreditation course. Instructor consent required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EHOH 6633 - International Travel and Health (1 Credit)**

This course is designed to help students understand and respond to health and safety risks that accompany international travel. It emphasizes using available resources to create recommendations based on both travel itinerary and specific activities. Some medical subjects are included but medical jargon will be avoided. Prerequisites: This course is required for all CSPH students planning international travel for any independent coursework, Practicum and/or Capstone.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EHOH 6634 - Spec Professions Protecting/Promoting Worker Health (1 Credit)**

Introduction to multiple occupational health professions including industrial hygiene, ergonomics, occupational health psychology, occupational safety, health physics, occupational medicine, epidemiology, health promotion and wellness, program evaluation and risk management. Practice issues, current research and methods are covered.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EHOH 6635 - Climate Change and Health (3 Credits)**

This course will study the potential health impacts of climate change with an emphasis on understanding the state of the science, and developing skills to identify vulnerable populations, evaluate climate adaptation and mitigation measures and communicate with stakeholders. Prerequisite: EHOH 6614

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EHOH 6636 - Occupational Safety and Ergonomics with Journal Clubs (3 Credits)**

This course will form a foundation for understanding of workplace factors important in the prevention of injuries. Students will recognize safety and ergonomic hazards that may lead to injury as well as learn strategies to abate these hazards. Students will apply knowledge gained during the course during student-led journal clubs.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 6637 - Occup & Environ Health Working the West Industry Tours (1 Credit)**

Interdisciplinary field experience meant to engage students in a variety of high-risk Colorado industries. Students will spend one week traveling around Colorado touring 5 uniquely hazardous work environments to receive first-hand experience of occupational hazards and get exposure to occupational safety and health promotion disciplines.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EHOH 6638 - Communication Skills for Public Health Impact (3 Credits)**

Experiential approach to training public health students to become better communicators using examples from environmental and occupational health. Grounded in theory, but focusing on practical skill development, this course will prepare students for common scenarios in which they will be called upon to state the case for public health.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 6639 - Occupational Health Psychology (3 Credits)**

This course seeks to advance understanding of both organizational and individual factors that influence total worker health. The course includes an introduction to organizational psychology, seminal and current research and best practices regarding key topics and issues in occupational health psychology.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EHOH 6640 - The Built Environment and Public Health (3 Credits)**

This course provides an introduction to the built environment and its impact on public health examining how specific features within the built environment and related policies (global, national and local) affect human health outcomes. The course will have a specific focus on regional and local built environment issues.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EHOH 6641 - Critical Policies in Global Health Engagement (3 Credits)**

This course will provide a foundation of knowledge in the critical policies which govern global health engagement. Providing insights from experienced professionals, and using key case studies to highlight each policy, students will emerge with a pragmatic understanding of how these policies function during times of acute crisis. Suggested Prerequisite: EHOH 6625

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.



**EHOH 6642 - Disaster Mental Health: International and Domestic (3 Credits)**

Examination of international and domestic perspectives on current events and contemporary debates. Topics include mental health symptoms associated with natural hazards, mass violence and humanitarian crises, cross-cultural symptom variation, and evidence-based treatments. Case studies and practitioner perspectives are emphasized.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**EHOH 6643 - Air Quality and Public Health (3 Credits)**

This course will provide a broad perspective on public health concerns related to air pollution and air quality. Topics include: air pollution sources; effects on human health and the environment; how climate change impacts air; air quality standards, sampling, monitoring and health assessments; bioterrorism; accessibility to clean air.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Spring.

**EHOH 6644 - Advanced GIS for Public Health Research and Practice (3 Credits)**

This course expands on the fundamentals of data management and basic analysis of spatial data so that the student can analyze space/time data. Spatial analysis using ESRI's ArcGIS software, concepts of geostatistics, using R functions and programming to model space/time random variables are covered. EHOH 6621 and BIOS 6601 or equivalent.

Grading Basis: Letter Grade

Typically Offered: Spring.

**EHOH 6645 - Research Methods: Climate, Disaster, Humanitarian (3 Credits)**

Practical research proposal building course focused on mixed methods approaches for testing a variety of health interventions in climate change-affected, disaster and humanitarian settings.

Grading Basis: Letter Grade

Typically Offered: Summer.

**EHOH 6650 - MPH Research Paper (1-2 Credits)**

Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data. Permission of Department required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring, Summer.

**EHOH 6656 - Environmental Data Science for Public Health (3 Credits)**

Introduction to acquisition, organization and analysis of geospatial data relevant to public health. Data sources covered will include ground-based air quality and weather sensors, remote sensing (satellite) products, climate and weather model output and data on water quality, traffic and mobility, and housing and socio-demographics. Pre-requisite: BIOS 6601/ BIOS 6602 or BIOS 6611/BIOS 6612 or a year of equivalent graduate level statistics or permission of instructor. Cross-listed with EPID 6656.

Grading Basis: Letter Grade

Typically Offered: Fall.

**EHOH 6670 - Special Topics: Environmental & Occupational Health (1-3 Credits)**

Special interest areas of current environmental and occupational research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 999.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EHOH 6710 - Disasters, Climate Change and Health (3 Credits)**

This course provides a review of the impacts of all types of disasters and climate change on human health, using a broad framework of preparedness, mitigation, response, recovery, with an emphasis on vulnerability and adaptation. Crosslisted GEOG 5710.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 6840 - Independent Study: Environmental and Occupational Health (1-3 Credits)**

Faculty directed independent study in topics related to environmental and occupational health. Department permission required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EHOH 6990 - MPH Capstone Preparation - EHOH (1 Credit)**

MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

Grading Basis: Pass/Fail with IP

This course is restricted to students with a MPHD-MPH plan of study only.

Typically Offered: Fall, Spring, Summer.

**EHOH 7030 - DrPH Directed Reading (1-2 Credits)**

DrPH students prepare for comprehensive exams and dissertation research by becoming an expert in specific areas of research, including understanding of the historical development of specific areas, current research findings in specific areas, and current practice.

Requires permission of DrPH Program Director and instructor consent.

Prerequisite: Requires permission of DrPH Program Director and Instructor consent.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EHOH 7631 - Advanced Methods in Environmental & Occupational Health (2 Credits)**

This course will focus on five areas of advanced methodology for EOH: exposure assessment, toxicology, epidemiology, built environment, and worker health. Methods covered include survey design, environmental sampling, risk assessment, biomarkers, and on issues associated with analysis of secondary datasets. First of two course series. Prereq or Coreq: EHOH 6614

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EHOH 7632 - Advanced Field Methods in EOH (1 Credit)**

This course follows and will build on the Advanced Methods in EOH course (EHOH 7631) where the EOH DrPH students prepare an NIH R21-style grant proposal. This course will then provide practical field and laboratory applications on the project from the Fall course that is based on the students' interests. Prerequisite: EHOH 7631 Instructor consent required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EHOH 8991 - DrPH Dissertation-Environmental & Occupational Health (1-10 Credits)**

DrPH Dissertation work in Environmental and Occupational Health

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Epidemiology (EPID)

**EPID 6601 - A History of Public Health (1 Credit)**

This course provides a broad overview of public health history and the political, economic, medical, legal and ethical factors that have shaped the environment in which the public health care professional of today must function.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6606 - Obesity and Cardiovascular Disease (1 Credit)**

The epidemiology of obesity and cardiovascular disease and basic and clinical mechanisms on the pathophysiology of vascular biology, insulin resistance, and other risk factors for cardiovascular disease as well as behavioral, pharmacological and surgical therapeutic interventions to modify cardiovascular disease risk by weight reduction. Requisite: Cross-listed with IDPT 6006 Obesity and Cardiovascular Disease

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**EPID 6622 - Cancer Prevention and Control (2 Credits)**

Course provides overview of preventable cancers, epidemiology and contributing factors. Phases of cancer control research and appropriate methodologies are discussed. Basic principles of intervention development are reviewed. Psychosocial issues related to cancer are discussed. Students research topic related to course. Prereq: EHOH 6614, EPID 6630. Offered in even years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 6624 - Public Health Surveillance (2 Credits)**

This course focuses on characteristics, development, uses, and evaluation of major public health surveillance systems. History, goals, public health authority, analysis, interpretation, dissemination and privacy issues are covered. Key surveillance systems (communicable diseases, vital statistics, injury, cancer) are explored. Prerequisites: EPID 6630

Restrictions: Offered odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6626 - Research Methods in Epidemiology (3 Credits)**

Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research are the focus of this class. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies. Prereq: BIOS 6601, BIOS 6680, EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6628 - Global Health and Disasters (2 Credits)**

Preparation for international experiences and future global health work.

The interactive training incorporates readings, lectures, small group problem based learning exercises, journal club discussions, technical skill sessions and a disaster simulation exercise. 2 week M-F training followed by 4 journal club sessions.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6629 - Clinical Epidemiology (2 Credits)**

This course provides an overview of the design, conduct and appraisal of clinical research. Topics include study design, issues in randomized trials, measurement error, assessment of diagnostic and screening tests, measurement of health-outcomes, meta-analysis and use of questionnaires. Prerequisites: EPID 6630. Restriction: Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 6630 - Epidemiology (3 Credits)**

This course provides an introduction to descriptive and analytic methods in epidemiology and their application to research, preventive medicine and public health practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EPID 6631 - Analytical Epidemiology (3 Credits)**

Fundamental analytical skills for assessing and reporting disease status, determinants of disease and their impact on public health including determining rates of disease occurrence, measures of associations between exposures and disease, and techniques for identifying and correcting for misclassifications, effect modifiers and confounder.

Prerequisites: EPID 6630 and BIOS 6601 or BIOS 6611

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6633 - Clinical Preventive Services: Evidence-Based Practice (1 Credit)**

This course introduces students to evidence-based recommendations for (and against) key clinical preventive services; methods for developing evidence-based practice guidelines and implementation of clinical preventive services in diverse practice settings; and effective implementation at the individual, provider, and system levels.

Prerequisite: EPID 6630 or equivalent or permission of instructor. Prior or in-progress clinical degree (MD, DVM, DDS, RN, NP, PA, LPN, PharmD or similar) required. Offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6634 - Applied Global Health Epidemiology (2 Credits)**

This course provides the opportunity to apply previously gained analytic skills to “real world” examples of global public health investigations as well as US public health investigations covering topics/skill sets with global importance. It also provides opportunities to explore in depth the practical application of skills. Prerequisite: Completion of or current enrollment in EPID 6630 or permission of instructor

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6635 - Infectious Disease Epidemiology (2 Credits)**

This course considers the epidemiology of selected communicable diseases. Methods for their prevention and control, and assessment of these methods will be treated primarily through case studies. Prereq: EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6636 - Chronic Disease Epidemiology (3 Credits)**

The major chronic diseases of Western countries will be reviewed including heart disease, cancer, stroke, diabetes, neurological diseases, and selected other conditions. Factual information about epidemiology of these diseases will be provided with the discussion of methodological issues which arise. Prereq: EPID 6630.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6637 - Injury and Violence Epidemiology and Prevention (2 Credits)**

Students will learn the major causes of and risk factors for injuries and violence, identify and use key data sources to characterize injury problems, develop and evaluate injury control and prevention strategies, critically analyze literature and explore injury related research questions. Prereq: EPID 6630 or permission of instructor. Restriction: Offered Even Years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6638 - Global Cardiovascular Epidemiology (2 Credits)**

A review of the major issues in global cardiovascular disease epidemiology, including trends, the extent of the disease nationally and internationally, implications of major epidemiologic studies, and strategies for prevention. Emphasis of the course will be on review and interpretation of the cardiovascular epidemiology literature. Prereq: EPID 6630. Restriction: Offered even years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6640 - Investigation of Disease Outbreaks (2 Credits)**

This course will cover the epidemiologic steps in a disease outbreak investigation and the methods used in detection, investigation and control of disease outbreaks. Outbreak case studies will be used to illustrate concepts and approaches. Students will describe, analyze and interpret outbreak data. Prerequisite: EPID 6630

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6641 - Epidemiology of Foodborne and Diarrheal Diseases (2 Credits)**

Agents causing foodborne and diarrheal diseases have different clinical presentations, environmental niches, and modes of transmission. Students will learn about important foodborne agents, surveillance and epidemiological methods used to investigate risk factors for disease, and prevention and control strategies. Prerequisite: EPID 6630

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6642 - Genetics in Public Health (2 Credits)**

Course introduces public health and research applications in genetics. Topics will include population genetics, genetic epidemiologic principles, screening, ethics, and the effect of genetics on population health. Interactive discussions and lectures will be based on current topics from literature. Prerequisite: EPID 6630. Course is offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6643 - Epidemiology and Prevention of TB/HIV/STDs (2 Credits)**

Surveillance and control of tuberculosis, HIV/AIDS, and sexually transmitted diseases require a range of public health and epidemiologic approaches. Students will apply descriptive and analytical epidemiologic methods to the study of these infectious diseases. Prerequisites:

EPID 6630

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6644 - Maternal Child Health Epidemiology (3 Credits)**

The purpose of this course is to train public health students to use epidemiologic tools for the appropriate interpretation of data and information to drive MCH program assessment, planning, evaluation and policy development.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6645 - One Health - EcoHealth - Planetary Health (1 Credit)**

This course provides students with a fundamental understanding of One Health, EcoHealth and Planetary Health including synergies, overlap and differences between the concepts, and to provide the ability to evaluate systems health approaches regarding their merits and sustainability.

Grading Basis: Letter Grade

Typically Offered: Spring.

**EPID 6646 - Introduction to Systematic Reviews (1 Credit)**

Introduces methods of conducting systematic reviews to identify the best available evidence about health and public health interventions. Topics will include the design and implementation of reviews, publication bias, search strategies, meta-analysis, and reporting results through the Cochrane Library. Prereq: EPID 6630 or permission of instructor. Restriction: Offered odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 6647 - CU Denver in India: Global Health in the Heart of India (3 Credits)**

This course is a two-week field-based course in which students will engage directly in a community needs assessment of 60 communities and will observe and participate in outreach activities related to breast and cancer screening of Indian women. Students will acquire knowledge and specific skills on methods and practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**EPID 6648 - Theory/Practice Foodborne Disease Outbreak Detection (1 Credit)**

This course focuses on the practical basis for developing and implementing methods for foodborne disease outbreak detection, investigation and control; using recent outbreaks to highlight underlying principles.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 6649 - Vaccine Science, Application and Policy (2 Credits)**

Processes leading to vaccine development and implementation and the use of immunizations for disease prevention. Emphasis on an in-depth understanding of the vaccines successfully introduced into routine immunization programs and the epidemiologic tools necessary to develop and evaluate vaccines, policy making, safety and effectiveness. Prerequisite: EPID 6630 or Permission of Instructor

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 6650 - MPH Research Paper (1-2 Credits)**

Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data. Permission of Department required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EPID 6651 - EPID MS Research Paper (1-6 Credits)**

Masters research paper in epidemiology is completed under this course.

Grading Basis: Letter Grade with IP

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**EPID 6652 - Fundamentals of Clinical and Epidemiological Research (1 Credit)**

Designed for clinicians who are interested in rapidly learning fundamental research principles appropriate to developing new research on child abuse. Non-clinicians by permission. Creating a study question, formulating hypotheses, study designs and basics of statistical inference.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 6653 - Challenges/Opportunities Child Maltreatment Research (1 Credit)**

Course is designed for trained researchers interested in examining topics related to child abuse. It will provide basic background on the child abuse problem from multiple perspectives and facilitate cross-disciplinary exploration of controversies and related unanswered research questions.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 6654 - Child Abuse/Neglect Prev Rsrch/Eval Public Health Lens (1 Credit)**

This course will provide an overview of key concepts underlying prevention of child abuse and neglect from a public health perspective with an emphasis on eliminating disparities, principles of public health research and practice applied to child abuse and neglect prevention and different aspects of prevention research and evaluation.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Summer.

**EPID 6655 - Infectious Diseases Causing Chronic Diseases (2 Credits)**

The burden of chronic disease that is currently thought to be associated with infectious diseases exposures covering both accepted causal relationships as well as diseases where infectious diseases are discussed as a contributing factor or assumed to play a role without formal proof at this point. Prerequisites: EPID 6635 or EPID 6640 and EPID 6630 and BIOS 6601 or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Spring.

**EPID 6656 - Environmental Data Science for Public Health (3 Credits)**

Introduction to acquisition, organization and analysis of geospatial data relevant to public health. Data sources covered will include ground-based air quality and weather sensors, remote sensing (satellite) products, climate and weather model output and data on water quality, traffic and mobility, and housing and socio-demographics. Pre-requisite: BIOS 6601/ BIOS 6602 or BIOS 6611/BIOS 6612 or a year of equivalent graduate level statistics or permission of instructor. Cross-listed with EHOH 6656.

Grading Basis: Letter Grade

Typically Offered: Fall.

**EPID 6657 - Concepts and Methods of Infectious Disease Epidemiology (2 Credits)**

Deeper understanding of concepts and methods specific to infectious disease epidemiology, building upon principles of general epidemiology, and knowledge of specific infectious diseases. The course builds on the central principle of dependent happenings. Prerequisite: EPID 6630

Grading Basis: Letter Grade

Typically Offered: Spring.

**EPID 6670 - Special Topics: Epidemiology (1-3 Credits)**

Special interest areas of current epidemiology research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 999.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EPID 6840 - Independent Study: Epidemiology (1-3 Credits)**

Faculty directed independent study in topics related to epidemiology.

Restriction: Department permission required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 999.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EPID 6950 - Masters Thesis (1-6 Credits)**

Epidemiology thesis work is completed under this course.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**EPID 6990 - MPH Capstone Preparation - EPID (1 Credit)**

MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

Grading Basis: Pass/Fail with IP

This course is restricted to students with a MPHD-MPH plan of study only.

Typically Offered: Fall, Spring, Summer.

**EPID 7030 - DrPH Directed Reading (1-2 Credits)**

This course will prepare DrPH students for comprehensive exams and dissertation research by becoming an expert in specific areas of research, including understanding of the historical development of specific areas, current research findings in specific areas, and current practice. Requires permission of course director and Instructor consent. Cross-listed with CBHS 7030.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EPID 7605 - Research Methods with Secondary Data Sources (3 Credits)**

Principles and methods for research design and analysis of secondary data sources including those designed for surveillance and those derived from practice. Students evaluate whether specific research questions can be answered with secondary data. Offered Spring of even years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 7615 - Pharmacoepidemiology (2-4 Credits)**

This course builds upon fundamental concepts and methods of epidemiology, applied to the study of pharmaceuticals. Topics include: The FDA approval process, mechanisms of adverse drug effects, methods and data systems for studying drug-effect relationships, and evaluating published pharmacoepidemiology studies. Prereq: EPID 6630, 2 course biostatistics series (BIOS 6601-6602 or BIOS 6611-6612). Restriction: Offered odd years, NA for 2 credit section.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 7631 - Advanced Epidemiology 1 (3 Credits)**

Fundamental and analytical tools of epidemiology through lectures, real-world examples and applied exercises using statistical software and demonstration datasets. Focus will be on the application of analytical and statistical approaches to determine causal relationships between exposures and disease. Requisite: EPID 6630 or equivalent and BIOS 6611 (may be taken concurrently) or BIOS 6602 with consent of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**EPID 7632 - Advanced Epidemiology 2 (3 Credits)**

This is an advanced course on epidemiologic methods designed to improve the student's ability to conduct and interpret observational epidemiologic studies. Prereq: EPID 6630, EPID 6631, BIOS 6601

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 7640 - Genetic Epidemiology (2 Credits)**

This course will be a problem-based class, covering basic genetic principles and teaching epidemiologic methods employed in the investigation of the genetic susceptibility to chronic disease.

Prerequisite: EPID 6630; BIOS 6601. Course is offered in odd years.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**EPID 7911 - Epidemiologic Field Methods (1-4 Credits)**

PhD students have the opportunity to work with faculty on current epidemiologic projects to develop skills in field research, proposal writing, budget development, staff hiring and training, protocol and instrument development and implementation, and specific methods topics. Prereq: EPID 6626, EPID 6630, EPID 6631, EPID 6632, BIOS 6611, BIOS 6612. Restriction: Enrollment in Epidemiology PhD program or permission of instructor is required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**EPID 7912 - Developing a Research Grant (3 Credits)**

PhD/DrPH students prepare high quality, successful, research grant applications through development of cogent research questions & appropriate study designs. Students familiarize themselves with grant writing and review process and improve critical thinking skills and quality of scientific writing. Prerequisites: Enrollment in a doctoral program and permission of Instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**EPID 7915 - Analytic Methods in Epidemiology (1-4 Credits)**

Advanced treatment of techniques in the analysis of epidemiological studies, including longitudinal, time-dependent, survival data, casualty, missing data, etc. Students will analyze data sets currently on file using contemporary epidemiological methods. Prereq: EPID 6626, EPID 6630, EPID 6631, EPID 6632, BIOS 6601/6602 or BIOS 6611/6612.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.



**EPID 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work Epidemiology. Prereq: Permission of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**EPID 8991 - DrPH Dissertation work in Epidemiology (1-10 Credits)**

DrPH Dissertation work in Epidemiology

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Ethnic Studies-CSU (ETHS)

**ETHS 5020 - Research Methods (3 Credits)**

This course focuses on gaining a basic understanding of qualitative inquiry with a particular emphasis on narrative research, phenomenology, grounded theory, ethnography and case study. Interpretive frameworks such as feminist theories, critical theory and critical race theory, queer theory and disability theories will be addressed.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**ETHS 6950 - Independent Study (1-18 Credits)**

Independent study in ethnic studies.

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Family Practice (FMMD)

**FMMD 5005 - Introduction to Primary Care Sports Medicine (1-2 Credits)**

In order to increase exposure to the field of Primary Care Sports Medicine, students will participate in community based athletic coverage with faculty in the Division of Primary Care Sports Medicine. The course runs through Trimester 2 and 3.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 5010 - Rural Program Seminars and Workshops (1-2 Credits)**

Course is open to & required for all students in the Rural Program.

Sessions are focused on knowledge & skills that prepare Rural Program students for the rural longitudinal integrated clerkship & span these general domains: Clinical knowledge, clinical skills, community engagement & public health, professional ethics & healthcare business and finance.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 6001 - Introduction to Primary Care Sports Medicine (1 Credit)**

In order to increase exposure to the field of Primary Care Sports Medicine, students will participate in community based athletic coverage with faculty in the Division of Primary Care Sports Medicine. The course runs from fall to spring. Phase I and II students can take course

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**FMMD 6624 - Intro to Homeless Healthcare (1 Credit)**

This course introduces students to healthcare of Denver's homeless through a homeless healthcare workshop and clinical care at the Stout Street Health Center. Must be available on Thursdays to complete required clinical sessions. Phase I and II students can enroll

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**FMMD 6628 - Rural Track Elective (1 Credit)**

The course goal is to increase the number of students who eventually enter, and remain, in practice in rural Colorado. The track provides students with, mentor-ship, additional knowledge, broad skills and rural socialization experiences throughout the 4 years of school. Prereq: Student must have been accepted in the Rural Track or have course director approval to add. Course restrictions: A two-semester course, students must complete fall and spring semesters.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 6630 - Summer Rural Track (8 Credits)**

Min:1 / Max:26. In this 4-week clinical experience students will live in a preceptor's community and participate in the professional and community life of a rural physician. Priority is given to students who have completed Rural Track elective FMMD 6628.

Grading Basis: Medical School

Typically Offered: Summer.

**FMMD 8002 - UC Health Fam Med AI (8 Credits)**

Offered all sections. 4 wks. Max:1. Experience CU Family Medicine!

Students will be members of the inpatient service team at the Anschutz Inpatient Pavilion, take call, and will spend 2 half days per week at the A.F. Williams Family Medicine Center (outpatient clinic).

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8003 - Rose Family Medicine Sub-I (8 Credits)**

Students will be an acting intern on this Sub-I, including 3 wks of inpatient & 1 wk of outpatient. On inpatient, Sub-Is will complete orders, admission H&Ps, daily notes, discharge summaries, consultant calls, and attend didactics/teaching if time allows. On outpatient, Sub-Is will work alongside senior residents and faculty preceptors.

Grading Basis: Medical School

Typically Offered: Spring, Summer.

**FMMD 8007 - Out-Patient Family Med (8 Credits)**

Offered all sections. 4 wks. Max: 1. Course is an outpatient family medicine at A.F. Williams Family Medicine Center and Denver Health's Lowry Family Medicine Clinic. Multidisciplinary faculty including pharmacologists, behavioral scientist, and experienced family physicians and residents caring for a diverse group of patients.

Grading Basis: Medical School

**FMMD 8008 - Occup/Envir Med In FMMD (4-8 Credits)**

Offered all sections. 2 - 4 wks. Students will learn principles of Occupational and Environmental Medicine. A variety of assessments ranging from sport physicals, commercial/FAA exams to complex disability evaluations will be taught. Elective taught by Drs. Stephen Gray or James Bachman. Prereq: Course director approval required to add this elective.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**FMMD 8012 - Oral Health: Acute Dental (4 Credits)**

2 wks. Max:4. The focus of this elective is on recognition, assessment, triage and treatment of acute dental problems such as pain, infection and trauma. Students interested in rural or underserved primary care practice should take this elective. Prereq: 4th year medical student. Restrictions: This elective is offered only at selected times, students must communicate with Course Director about what times are available. It will not be offered in June, July, August, or December.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**FMMD 8017 - Northern CO Fam Med/OB AI (8 Credits)**

Students work with family medicine faculty & residents while acting as the primary provider for several patients daily. Students see patients & assist team with daily tasks, while participating in the care of hospitalized adults, patients in OB triage, labor & delivery, postpartum, & normal newborn. 2wks inpt medicine, 2wks OB/Newborn.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8018 - St. Joseph-Bruner FMC AI (8 Credits)**

At the SJH FM Residency, the sub-intern will engage in both inpatient and outpatient clinical care. They will be an integral part of the Family Medicine Service during their inpatient weeks. The outpatient time will occur in the residency clinic, serving an urban, under-served patient population in Denver and surrounding areas.

Grading Basis: Medical School

Typically Offered: Spring, Summer.

**FMMD 8019 - St Anthony Nth Fam Med AI (8 Credits)**

Students will engage in outpatient and inpatient care during this sub-internship at a Colorado family medicine residency. You will be supervised by the senior resident or faculty attending while on this rotation. This rotation is split into Inpatient, OB if desired, and outpatient clinics.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8020 - St. Mary's Family Med AI (8 Credits)**

Students will practice as a PGY-1 on this Sub-I. The schedule includes 2 wks admitting and rounding on the teaching service, 1 wk of night float with a focus on independence, cross-cover, and evening ICU & Peds rounds, and 1 wk of the family med clinic, a fully-integrated PCMH. Faculty attendings give individual attention to learning.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8021 - Southern CO Family Med AI (8 Credits)**

During the Sub-I at the Southern CO Family Medicine residency, students will work with 2 interns and 2 upper level residents on the inpatient medicine service, with some opportunities to cross-cover on pediatrics & obstetrics. Several half-days per week, the student will be able to attend High-Risk OB and specialty outpatient clinics.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8022 - Swedish Family Medicine AI (8 Credits)**

Students will engage in outpatient and inpatient care during this sub-internship at the Swedish family medicine residency. Students will work with residents and faculty in the out-patient clinic, on the Inpatient Service, in the nursing home and at the school-based clinic.

Grading Basis: Medical School

Typically Offered: Fall, Summer.

**FMMD 8023 - Fort Collins Family Med AI (8 Credits)**

We provide students with exposure to full scope family medicine. Our Sub-I includes 3 weeks of inpatient medicine, seeing patients on the medicine, peds and Ob services. There is 1 week of outpatient, where Sub-Is will see adults, children, and prenatal patients; and do nursing home visits, procedures, and other specialty care clinics.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8024 - NCFM – Wray Med/Ob AI (8 Credits)**

Students work with family medicine faculty & residents while acting as the primary provider for several patients daily. Students see patients & assist team, while longitudinally participating in the care of patients between the ED, hospital, labor & delivery, and clinic. Requires commitment to participating in care over multiple settings. Pre-requisite: Open to students interested in pursuing a career in family medicine with specific interest in full-spectrum and rural family medicine.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8025 - NCFM – Sterling Med/Ob AI (8 Credits)**

Students work with family medicine faculty & residents while acting as the primary provider for several patients daily. Students see patients & assist team, while longitudinally participating in the care of patients between the ED, hospital, labor & delivery, and clinic. Requires commitment to participating in care over multiple settings. Requisite: Open to students interested in pursuing a career in family medicine with specific interest in full-spectrum and rural family medicine.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**FMMD 8100 - FMMD Elective Away (4-8 Credits)**

This Family Medicine elective will be held at a site in Colorado or another state. Students must obtain departmental approval one month prior to the start. 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**FMMD 8600 - Research in FMMD (4-24 Credits)**

Students may participate in scholarly work directed by specific Family Medicine faculty members including practice-based research, curriculum development, patient education projects, and other scholarly activities. A DFM, MSA or research mentor must supervise and are responsible for evaluations.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

## Fish, Wildlife & Conservation Bio-CSU (FWLD)

FWLD 5440 - Ecotoxicology (3 Credits)

The purpose of this course is to provide students with an overview of ecological and environmental aspects of toxicology and pollution ecology. The course will emphasize population, community, and ecosystem responses to contaminants and other anthropogenic stressors. Prerequisite: Statistics and introductory biology required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

## Fixed Prosthodontics (DSFD)

DSFD 6031 - Clinical Fixed Prosthodontics 1 (0.1-5 Credits)

Clinical rotation in fixed prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

DSFD 6610 - Fixed Prosthodontics (0.1-5 Credits)

Advanced pre-clinical lecture course. Ceramic restorations are included with discussion of pontic design and manipulation of gold solder. Dowel-core fabrication for endodontically treated teeth is covered. Clinical application is stressed and study of diagnosis and treatment planning is expanded.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

DSFD 6611 - Fixed Prosthodontics Laboratory (0.1-5 Credits)

Continuation of Fixed Prosthodontics with emphasis on ceramic restorations and the procedures involved in fabricating fixed bridges in the anterior of appearance zone. Restorations include direct pattern fabrication of dowel-cores to build up badly broken-down or fractured teeth.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

DSFD 7011 - Clinical Fixed Prosthodontics 2 (0.1-5 Credits)

Clinical rotation in fixed prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSFD 7022 - Clinical Fixed Prosthodontics 3 (0.1-5 Credits)

Clinical rotation in fixed prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSFD 7033 - Clinical Fixed Prosthodontics 4 (0.1-5 Credits)

Clinical rotation in fixed prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

DSFD 8011 - Clinical Fixed Prosthodontics 5 (0.1-5 Credits)

Clinical rotation in fixed prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSFD 8022 - Clinical Fixed Prosthodontics 6 (0.1-5 Credits)

Clinical rotation in fixed prosthodontics.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

DSFD 8861 - Advanced Implant Prosthodontic Seminar (0.1-5 Credits)

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

## Food Sci and Hum Nutrition-CSU (FSHN)

FSHN 5000 - Food Systems, Nutrition and Food Security (2 Credits)

Global and local food systems and their potential influence on nutrition and food security. Prereq: FSHN 350.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

FSHN 5200 - Advance Medical Nutrition Therapy (3 Credits)

Role of nutrition in etiology and treatment of selected disorders. Prereq:

FSHN 5500 or FSHN 5510.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Summer.

FSHN 5250 - Nutrition Education, Theory and Practice (2 Credits)

Examination of current theories, skills, and models used in nutrition education programs as preparation for research and practice. Instructor permission if not in Public Health Nutrition focus area. Prereq: 350.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

FSHN 5300 - Principles of Nutrition Science and Metabolism (3 Credits)

This course provides an understanding of the fundamental scientific concepts of human nutrition including digestion, absorption, metabolism, and function of macro- and micronutrients as they relate to maintenance of cellular homeostasis, human health and disease.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

FSHN 5500 - Advanced Nutritional Science I (3 Credits)

Protein, vitamin, mineral metabolism: human studies, animal models.

Prereq: BC 351 or BC 403; FSHN 350

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

FSHN 5510 - Advanced Nutrition Science II (3 Credits)

Carbohydrate, lipid, energy metabolism; human studies, animal models.

Instructor permission if not in Public Health Nutrition focus area. Prereq: BC 351 or BC 403; FSHN 350.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**FSHN 6200 - Community Nutrition Plan and Evaluation (3 Credits)**

Community nutrition assessment; nutrition program planning and evaluation; nutrition policy analysis. Prereq: FSHN 350.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**FSHN 6280 - Advanced Nutrition Counseling Techniques (2 Credits)**

Principles, strategies, and techniques for interviewing, assessing, and providing nutrition counseling in community settings.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**FSHN 6400 - Select Topics in Nutritional Epidemiology (2 Credits)**

Overview of topics in nutritional epidemiology, study design, interpretation of findings, linkage of data to action. Prereq: FSHN 350; STAT 301 or STAT 307/ERHS 307

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**FSHN 6500 - Recent Dev in Human Nutrition - Proteins (2 Credits)**

The purpose of this course is to read and discuss the recent literature on nutrition topics that are of emerging importance and relevance to major health promotion/disease prevention issues. This course covers protein, vitamins, and minerals. Prerequisite: FSHN 5500 required

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**FSHN 6501 - Human Nutrition: Carbohydrates, Lipids and Energy (2 Credits)**

Appraisal of literature on human nutritional status. Instructor permission if not in Public Health Nutrition focus area. Prereq: FSHN 350.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**FSHN 6502 - Recent Developments in Human Nutrition - Genomics (2 Credits)**

Students will learn about recent human nutrition developments pertaining to genomics, proteomics, and metabolomics. Prerequisite: Organic chemistry; Biochemistry; 300-level human nutrition course; FSHN 5510.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**FSHN 6600 - Women's Issues in Lifecycle: Nutrition (2 Credits)**

Current nutritional issues related to selected stages of the lifecycle compared to normal adult nutritional needs. Prereq: FSHN 459.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**FSHN 6610 - International Nutrition (2 Credits)**

Roles of technological programs and international agencies in meeting nutritional needs. Prereq: FSHN 350; Instructor permission if not in Public Health Nutrition focus area.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**FSHN 6950 - Independent Study: Food Science (1-18 Credits)**

Specialized study in food science under supervision of faculty. Instructor permission if not in Public Health Nutrition focus area.

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**FSHN 6951 - Independent Study: Nutrition (1-18 Credits)**

Specialized study in nutrition under supervision of faculty. Instructor permission if not in Public Health Nutrition focus area.

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Food Technology-CSU (FTEC)

**FTEC 5720 - Food Biotechnology (2 Credits)**

Interrelationships among microorganisms, food processing methods, advances in biotechnology and food quality, spoilage, shelf-life and safety.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**FTEC 5740 - Current Issues in Food Safety (2 Credits)**

Current food safety issues from field to table; microbiological, consumer, processing and agricultural issues.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

## Genetic Counseling (GENC)

**GENC 6101 - Psychosocial Aspects of Genetic Counseling 1 (2 Credits)**

This is the first course in a two-semester sequence addressing basic psychosocial and counseling theories, approaches, and resources necessary for the provision of genetic counseling to clients and their families in prenatal, pediatric and adult clinical settings. Coreq: GENC 6105, GENC 6110. Restrictions: Matriculated students in Genetic Counseling MS Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.



**GENC 6102 - Psychosocial Aspects of Genetic Counseling II (2 Credits)**

This is the second course in a two-semester sequence addressing basic psychosocial and counseling theories, approaches, and resources necessary for the provision of genetic counseling to clients and their families in prenatal pediatric and adult clinical settings. Prereq: GENC 6101. Co-Req: GENC 6105, GENC 6110. Restrictions: matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6105 - Basic Interviewing Skills (1 Credit)**

This course covers fundamental theories and principles of effective patient/client interviewing in genetic counseling practice. Lectures are combined with hands-on role plays and interviews so that students may gain applied experience and receive feedback to foster skills development throughout course. Coreq: GENC 6101, GENC 6110.

Restriction: Matriculated student in Genetic Counseling M.S. Program

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6110 - Topics in Medical Genetics I (3 Credits)**

First course in a two-part course sequence regarding principles of clinical genetics and genetic counseling and development of clinical skills used in various medical genetics settings. Fall semester focuses on principles important in pediatric and general genetics settings.

Restriction: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6111 - Topics in Medical Genetics II (2 Credits)**

Second course in two-course sequence regarding principles of clinical genetics and genetic counseling used in various medical genetics settings, and development of critical skills. Spring semester focuses on prenatal and adult genetics clinic settings. Prereq: GENC 6110.

Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6120 - Clinical Cytogenetics and Molecular Genetics (3 Credits)**

This course provides integrated instruction regarding human cytogenetic and molecular genetic principles, techniques, and diagnostic testing approaches used in clinical evaluation and risk assessment for genetic disorders/predispositions in prenatal and postnatal patient populations.

Coreq: GENC 6121. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6121 - Laboratory in Clinical Cytogenetics and Molecular Genetics (2 Credits)**

Course provides introduction to specific methodologies and interpretation of studies used in diagnostic cytogenetics and molecular genetics laboratories. Principles discussed in the co-requisite clinical cytogenetics and molecular genetics course will be applied through demonstrations, hands-on experiments, discussion of illustrative cases. Coreq: GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6122 - Seminar in Clinical Cytogenetics and Molecular Genetics (1 Credit)**

Course requires students to apply theories/principles of cytogenetics and molecular genetics to analysis of cases that present in daily operations of diagnostic laboratories and formal critique of current research literature. Additionally, students present formal seminar integrating cytogenetic/molecular genetic principles. Prereq: GENC 6120, GENC 6121. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6125 - Embryogenetics (1 Credit)**

Providing practical knowledge for genetic counseling this course on human embryology is focused on major developmental stages and organ systems with an emphasis on molecular genetic pathways and associated syndromes that arise due to their disruption. Requisite: Matriculated student in M.S. Genetic Counseling Program (GENC).

Grading Basis: Letter Grade

Typically Offered: Fall.

**GENC 6130 - Cancer Genetics and Genetic Counseling (2 Credits)**

Course in providing genetic counseling services to clients with or at risk for hereditary cancer predisposition. Topics include clinical oncology, epidemiology, molecular biology of cancer, risk assessment, genetic testing, ethical/legal issues, clinical research considerations, psychosocial impact/support, specific genetic counseling approaches. Prereq: GENC 6110, GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6140 - Human Inborn Errors of Metabolism (2 Credits)**

Course provides systematic review of major metabolic disorders, including their clinical phenotypes, diagnosis, and management. Physiological and laboratory testing principles important to understanding these disorders will be reviewed. Psychosocial impact of metabolic disorders and genetic counseling approaches will be discussed. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6150 - Congenital Malformations and Disorders of the Newborn (1 Credit)**

This survey course covers common major malformations and non-metabolic genetic disorders identified by newborn screening programs. Clinical phenotypes, diagnosis, management and etiology are addressed. Psychosocial impact of these conditions and genetic counseling approaches will be discussed. Prereq: GENC 6110. Co-Req: GENC 6111.

Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.



**GENC 6170 - Introduction to Clinical Research for Genetic Counseling Students (1 Credit)**

An introduction to clinical research including an overview of ethical principles, study methods and designs, practical execution, data analysis and presentation of results. Possible roles of a genetic counselor in the conduct of clinical research will be a course focus. Restrictions: Matriculated student in MS Genetic Counseling Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6201 - Advanced Psychosocial Genetic Counseling (2 Credits)**

This course examines advanced genetic counseling techniques as they relate to psychosocial theories, specific client characteristics and the client/counselor dynamic. Critical discussion of core topics and readings and case analysis will be used for instruction. Prereq: GENC 6101 and GENC 6102. Restrictions: Matriculated second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6210 - Professional Issues in Genetic Counseling I (2 Credits)**

First course in a two course sequence regarding professional practice issues of master's level genetic counselors. The Fall semester course focuses on professional standards, professional ethics, legal principles and health systems and policy issues relevant to genetic counselors. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6211 - Professional Issues in Genetic Counseling II (2 Credits)**

Second course in a two course sequence regarding professional practice issues of master's level genetic counselors. The Spring semester course focuses on disability issues, cultural competency, public health genetics, research methods in genetic counseling, and professional roles. Prereq: GENC 6210. Restrictions: Second year student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**GENC 6250 - Risk Calculation in Genetic Counseling (1 Credit)**

This course covers pedigree analysis and risk calculation principles used by genetic counselors in clinical practice. Prereq: GENC 6110, GENC 6120. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**GENC 6610 - Topic in Med Genetic 1 (3 Credits)**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6910 - Applied General Genetics Clinic (3 Credits)**

This is a clinical rotation for Genetic Counseling M.S. students through a general genetics clinic serving a variety of referral indications. Students will learn and practice case management, history taking, risk assessment, counseling and client advocacy skills. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6911 - Applied Prenatal Genetics Clinic (3 Credits)**

This is a clinical rotation for genetic counseling students through a prenatal diagnosis and genetics clinic. Students will learn/practice history taking, risk assessment, patient education and genetic counseling, case management, as well as observe prenatal diagnosis and Art procedures. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6912 - Applied Metabolic Genetics Clinic (3 Credits)**

This is a clinical rotation for genetic counseling students through a genetics clinic for inborn errors of metabolism. Students will work with patients referred for diagnostic evaluation, medical/nutritional management of specific conditions, and follow-up of positive newborn metabolic screening results. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6913 - Applied Regional & Specialties Genetics Clinics (1-2 Credits)**

This is a clinical rotation for genetic counseling students through regional outreach genetics clinics and specialty/multidisciplinary clinics serving patients with various genetic conditions. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6914 - Applied Hereditary Cancer Clinic (1-3 Credits)**

This is a clinical rotation for genetic counseling students through a hereditary cancer clinic for individuals seeking genetic counseling and testing for genetic cancer predisposition syndromes. Prereq: GENC 6110, PEDS 6601, PEDS 6602. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6915 - Applied Adult Medical Genetics Clinic (1 Credit)**

This is a clinical rotation for genetic counseling students through a medical genetics clinic and clinical research settings providing diagnosis, management, risk assessment and genetic counseling for adults. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6919 - Applied Medical Genetics Clinic - Clinical Elective (1-3 Credits)**

This is an elective clinical rotation for genetic counseling students desiring to arrange training in outside of core required clinical rotations or an additional, advanced rotation. Prereq: GENC 6101, GENC 6105, GENC 6110. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6920 - Applied Medical Genetics-Laboratory Genetic Counseling Elective (1 Credit)**

An elective rotation for students desiring an advanced, applied training experience with genetic counselors based in a genetics diagnostic laboratory. Restrictions: Matriculated student in GENC program who has completed required prerequisite courses listed; Permission of instructor. Prereq: GENC 6120; GENC 6121; GENC 6122

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6940 - Capstone in Genetic Counseling (1-2 Credits)**

Students will develop a proposal and complete an individualized scholarly project that contributes to the knowledge and/or practice of genetic counseling. GENC matriculated student with 2 semesters required coursework completed. Permission of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**GENC 6950 - Master's Thesis (1-6 Credits)**

Masters thesis research to be arranged with prior approval of the Graduate Program in Genetic Counseling. Restrictions: Matriculated student in Genetic Counseling M.S. Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Grant Admin-UNC (GERO)

**GERO 5550 - Grant Development and Administration (3 Credits)**

Overview of proposal planning and grant development process. Application of skills in identifying funding options, program planning, proposal writing, budgeting and establishing controls for grant administration.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

**GERO 5600 - Community Resources for the Elderly (3 Credits)**

Community-based learning required. Review needs of older persons in the community and evaluate the continuum of long-term care resources available, service gaps, program models, and funding mechanisms.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

**GERO 6250 - Psychosocial Aspects of Aging (3 Credits)**

Later life issues are explored using an ecological approach that highlights the benefits and consequences of aging for the individual, family, and society.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

**GERO 6350 - Social Policies of Aging (3 Credits)**

This course covers social policy and policy making at federal, state, and local levels. The history and development of key social policies that affect older Americans are reviewed, as are developments in regard to policies benefiting the elderly population.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

**GERO 6400 - Health Aspects of Aging (3 Credits)**

This course examines contemporary physical and mental health concerns of older adults. Course activities examine health and aging, and develop skills in presenting information to older adults, caretakers, academic peers and professionals who work with older adults.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

## Growth and Development (DSGD)

**DSGD 5105 - Research Methodology & Biostatistics 1 (2 Credits)**

This graduate course in dentistry is an in-depth study of scientific research methods, study design and organization, data gathering, and the biostatistical tools required to analyze the results of a study and carryout a scientific research project.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSGD 5205 - Research Methodology & Biostatistics 2 (2.5 Credits)**

This graduate course in dentistry is an advanced in-depth study of scientific research methods, study design and organization, data gathering, and the biostatistical tools required to analyze the results of a study. In addition this course requires the student to prepare a research proposal.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSGD 6114 - Advanced Oral Biology (2.3 Credits)**

This graduate course in dentistry is an advanced study of clinical oral pathology, bone biology, and microbiological aspects of the oral disease processes and conditions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSGD 6115 - Biomechanics, Bioengineering and Biomaterials (1.1 Credits)**

This graduate course in dentistry studies the biological aspects of the biocompatibility of synthetic and biologically altered materials with tissues and cells of the human body. This will include the study of treatment tools and procedures and their effect on the Dentoalveolar structures.

Grading Basis: Letter Grade

Typically Offered: Fall.

**Health and Exercise Sci-CSU (HESC)****HESC 6000 - Data Analysis and Research Design (3 Credits)**

Methods of research applied to health and exercise science including quantitative techniques of analysis and research design. Instructor permission if not in Health and Exercise Science focus area. Prerequisite of one course in statistics.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**HESC 6001 - Research Design (3 Credits)**

This course will discuss research and academic integrity, the responsible conduct of science, research and experimental design, an overview of basic and scientific writing skills, how to read/interpret scientific writing, and inferential statistics.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**HESC 6450 - Epidemiology of Health and Physical Activity (3 Credits)**

Foundation in chronic disease epidemiology that will enable students to evaluate the current epidemiologic literature. Prereq: HES 600.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**HESC 6500 - Health Promotion Program (3 Credits)**

Development of skills in health promotion program design, implementation and evaluation.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**HESC 6950 - Independent Study: Health (1-18 Credits)**

Independent study in health. Instructor permission if not in Health and Exercise Science focus area.

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**Health Humanities & Ethics (HEHE)****HEHE 5000 - Foundations of Health Humanities (3 Credits)**

This course explores the relationships among health, medicine, and society as well as the representations of illness, suffering, disability, and death through the lens of literature, the arts and philosophy, paying particular attention to power relationships and categories of difference.

Grading Basis: Letter Grade

Typically Offered: Fall.

**HEHE 5100 - Foundations of Health Care Ethics (3 Credits)**

This course provides learners with an opportunity to explore the foundations of health care ethics. The material will cover several different ethical frameworks, with an eye to application to practical problems of health care and population health.

Grading Basis: Letter Grade

Typically Offered: Spring.

**HEHE 5250 - Topics in Media, Medicine and Society (3 Credits)**

This interdisciplinary course will explore the interconnections and intersections between medicine and media, investigating a significant collaborative enterprise that characterizes American culture.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**HEHE 5350 - Narrative Principles and Practices in Healthcare (3 Credits)**

This course introduces students to the intellectual and clinical discipline of narrative work in healthcare. Students will explore the theoretical foundations of narrative in healthcare and participate in structured workshops to improve close reading of texts and writing skills. Requisite: 008754

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**HEHE 5450 - Addressing Health Stigma in Social Contexts (3 Credits)**

This interdisciplinary course will equip students with the tools needed to understand health stigma, to construct an explanation as to why it is so common and to explain what, if anything, should be done to address such stigma. Requisite: 008754

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**HEHE 5550 - Independent Study in Health Humanities & Health Ethics (1-3 Credits)**

This independent study will permit students to pursue specialized topics and/or previously studied topics in health humanities and health ethics in greater depth and with more flexible scheduling. Requisite: 008754

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**HEHE 5650 - Ethics, Medicine & the Holocaust: Legacies (3 Credits)**

German health professionals – especially physicians, but also nurses, dentists, pharmacists, midwives and public health practitioners – developed and led some of the most heinous activities of the Third Reich. Why? And what are the legacies of this history for medicine and society today?

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**HEHE 5655 - Introduction to Public Health Ethics (3 Credits)**

This course provides learners with an introduction to public health ethics. The material explores differences between public health ethics & health care ethics, important frameworks used in public health ethical analysis, and significant practice in analyzing public health ethics cases.

Grading Basis: Letter Grade

Typically Offered: Fall.

**HEHE 5750 - Pain, Its Paradoxes & the Human Condition (3 Credits)**

This course explores the lived experiences of pain, its paradoxes, and the extent to which it is a key feature of the human condition. Analyses will be drawn from history, religious studies, philosophy, literature, poetry, public health, medicine, and law.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**HEHE 5850 - Clinical Ethics (3 Credits)**

The course will introduce students to the theory, methods, history and application of clinical ethics through a broad overview of relevant theory and literature and through deep discussion of notable cases in the history of clinical ethics. Prereq: HEHE 5100

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

## Health Systems, Management, and Policy (HSMP)

**HSMP 6601 - Introduction to HSMP (3 Credits)**

Provides an introduction to health systems, management and policy. Topics include the financing and organization of the U.S. healthcare system; introduction to health policy, including stakeholder analysis; and basic managerial skills, including human resources and budgeting.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring, Summer.

**HSMP 6602 - Health Equity (3 Credits)**

Addresses health inequities affecting the poor, racial and ethnic minorities, prisoners, rural residents, disabled, GLBTI and other populations. The course studies: 1) measurement/data issues in health inequity research; 2) institutionalized, personally mediated and internalized causes; and 3) solutions/challenges.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 6604 - Health Care Economics (3 Credits)**

Uses economic theory to analyze and understand the U.S. health care system. Topics include: demand and supply of health and health care, health insurance, hospitals, pharmaceuticals, and physicians. Analyzes institutional and legal incentives that affect physician, patient, and insurer decision-making.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 6605 - Health Policy (3 Credits)**

Course focuses on important U.S. health policy issues and analysis, implementation, and communication skills for the practice of health policy. Evaluation is based on in-class labs, group projects, and analysis paper of a health policy case example.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**HSMP 6606 - Public Health Administration (2 Credits)**

Course provides an introduction to public health management and administration. Components aim to stimulate interactions around important problems and issues including managerial decision-making and increasing practical knowledge, tools, and strategies required by organizational decision-makers. Business plans are produced.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 6608 - Ethical and Legal Issues in Public Health (2 Credits)**

Course explores the legal and ethical dimension of public health. It focuses on topics that generate legal and ethical controversies, including governmental duties to protect citizens, nature and extent of the government's ability to regulate conduct, and responses to epidemics.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 6609 - Cost Benefit and Effectiveness in Health (2 Credits)**

Introduces students to the basics of economic evaluations of health care interventions or technology. Economic evaluations provide a method to assimilate different cost and health outcomes associated with medical treatments into a common metric.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**HSMP 6610 - Health Care Financial Management (3 Credits)**

Students will acquire the tools to incorporate financial, strategic, and mission-based objectives into capital investment decisions. The material also enables students to assess financing options and understand asset valuation techniques, create financial statements and perform pro-forma financial analyses.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**HSMP 6613 - Addressing Health Equity in Colorado's Safety Net (1 Credit)**

Real world health equity challenges as described by today's leaders featuring guest lecturers and case studies from organizations actually doing the work in communities across Colorado. The challenges of providing high quality medical, oral, behavioral and social services to some of Colorado's most diverse populations will be discussed.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 6614 - MCH Program Management & Policy Analysis (3 Credits)**

Students will learn and apply program management concepts and policy analysis methods to choose among potential policy and programmatic solutions to improve the health outcomes of pregnant women, infants, children, and children with special health care needs.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 6615 - Current Global Health Policy Issues (2 Credits)**

Students will identify major actors and their roles in global health policy; discuss major policy issues focusing on poverty reduction using case study examples; and write a health policy analysis paper for the assessment in this course.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**HSMP 6616 - Intro. to Health Policy Analysis and Communication (1 Credit)**

Introduces a framework for systemically and critically evaluating the health policy literature. Reviews effective oral and written communication skills for presenting policy analyses. Evaluation is based on a written analysis of a policy paper of the student's choosing.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6617 - Interpreting Health Policy and Management Research (2 Credits)**

This course explores the methods used in health policy and management research. Students learn to read and interpret research, with an emphasis on understanding the strengths and weaknesses of different analytical approaches to become an effective consumer of the literature.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6618 - Comparative Health Systems (2 Credits)**

This course provides framework for students to analyze the different ways that health care is organized and delivered in settings around the world, including low-, middle- and high-income countries. Exploration of how a country's history, geography, government and economy influence the way that health care is provided.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6621 - Interprofessional Education and Development I (1 Credit)**

This IPED course is part one of a two-semester course for students from public health, dental, medical, nursing and pharmacy schools. Students work in interdisciplinary teams to improve population health and quality of care, reduce costs and provide patient-centered care.

Grading Basis: Pass/Fail Only

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6622 - Interprofessional Education and Development II (1 Credit)**

This IPED course is part two of a two-semester course for students from public health, dental, medical, nursing and pharmacy schools. Students work in interdisciplinary teams to improve population health and quality of care, reduce costs and provide patient-centered care.

Grading Basis: Pass/Fail Only

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**HSMP 6630 - Grant Writing for Public Health Professionals (2 Credits)**

This course focuses on basic skills required to develop, fund and evaluate data-driven, evidence-based public health programs. The course involves the construction of a 3-step logic model: Need, intervention and outcomes. In addition, organization/individual capacity, partnerships and budget is discussed. Prerequisite: BIOS 6601, EPID 6630, and the core course within the student's MPH concentration.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6633 - Management of Non-Profit Organizations in Public Health (2 Credits)**

Course introduces nonprofit theory, focuses on nonprofit leadership and management, and explores nonprofit innovation and change within the context of public health. A highly practical and applied approach for students working in the nonprofit sector or with nonprofit partners.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6634 - Management, Budgeting and Public Health Administration (3 Credits)**

This course is designed to prepare public health professionals for management and administration of public health programs and community initiatives. Content addresses program planning, development, budgeting, management and evaluation.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall.

**HSMP 6640 - Leadership for Public Health Practice Part 2 (3 Credits)**

The focus of this course will be: 1) understanding public health structure, laws, regulations and policies; 2) creating a collaborative environment to deliver essential public health services; 3) create and disseminate work plans and results to communities and stakeholders. Restrictions: Enrollment in LPH concentration required. Pre-requisite: CBHS 6640. Department consent required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Spring.

**HSMP 6650 - MPH Research Paper (1-2 Credits)**

Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data. Department consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only.  
Typically Offered: Fall, Spring, Summer.

**HSMP 6651 - HSR Masters Research Paper (1-6 Credits)**

Masters Research Paper in HSR is completed under this course.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.



**HSMP 6670 - Special Topics: Health Systems, Management and Policy (1-3 Credits)**

Special interest areas of current health systems, management, and policy research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check with CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 999.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**HSMP 6840 - Independent Study: Health Systems Management and Policy (1-3 Credits)**

Faculty directed independent study in topics related to health systems, management and policy. Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**HSMP 6950 - MS Thesis (1-6 Credits)**

HSR Master thesis work is completed under this course.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**HSMP 6990 - MPH Capstone Preparation - HSMP (1 Credit)**

MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

Grading Basis: Pass/Fail with IP

This course is restricted to students with a MPhD-MPH plan of study only.

Typically Offered: Fall, Spring, Summer.

**HSMP 7010 - Foundations in Health Services Research (1 Credit)**

Introduces students to the academic health services research literature. This seminar course requires students to participate in small seminars led by faculty on different health services research topics plus attending larger HSMP departmental seminars. Evaluation is based on weekly papers.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring.

**HSMP 7601 - Research Design and Proposal Preparation (3 Credits)**

Research as a systematic method for examining questions derived from related theory and/or health service practice. Major focus is on the logic of causal inference, including the formulation of testable hypotheses relating to health services organization and management, the design of methods and measures to facilitate study. Requisite: Upper division course in statistics

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 7605 - Managing a Learning Healthcare System: Theory to Prac (3 Credits)**

How to implement and manage a Learning Healthcare System including history, current state and future directions. Systems theories, LHS researchers core competencies, challenges and solutions for creating work environments supportive of learning and evidence-based practices and policies will be explored.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**HSMP 7607 - Methods in Health Services Research I (3 Credits)**

The first of a 2-course sequence in empirical methods in health services research. The statistical theory underlying basic empirical methods and the thoughtful implementation/practice of these methods are emphasized. Topics covered include: OLS, Gauss-Markov assumptions, logit/probit. Stata will be used. Prereq: BIOS 6611

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Spring.

**HSMP 7609 - Methods in Health Services Research II (3 Credits)**

Students will learn how to specify and estimate econometric models to test theory-driven hypotheses. The course builds on HSMP 7607 and covers advanced methods related to panel/longitudinal, multinomial, survival, and count data models. Stata software will be used.

Prerequisites: HSMP 7607, enrolled in PhD or DrPH or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**HSMP 8990 - Doctoral Thesis - Health Systems Management and Policy (1-10 Credits)**

Doctoral thesis work in Health Systems Management and Policy.

Prerequisite: Permission of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Human Development & Family Studies-CSU (HDFS)

**HDFS 5920 - Grant Writing: Human Services (3 Credits)**

Writing grant proposals that support client services or for research.

Prereq: STAT 201.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**HDFS 6070 - Prevention Science Across the Life-span (3 Credits)**

Overview of prevention theory, methods, and standards of evidence.

Introduction to efficacious and effective interventions across the lifespan. Prerequisite: One of the following: CBHS 6610; CHBH 5090; HESC 5560; PBHC 5500

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**HDFS 6080 - Program Design and Implementation (3 Credits)**

This course provides students with a theoretical and practical foundation for selecting and implementing effective prevention strategies across multiple settings such as schools and community-based organizations. Credit will not be given for both HDFS 6080 and CBHS 6613 or CHBH 6100. HDFS 6080 cannot substitute for CBHS 6613 or CHBH 6100.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**HDFS 6090 - Prevention Program Evaluation (3 Credits)**

This course provides students with a theoretical and practical foundation for evaluating the impact of prevention strategies across multiple settings such as schools and community-based organizations. Credit will not be given for both HDFS 6090 and CBHS 6612 or CHBH 6100. HDFS 6090 cannot substitute for CBHS 6612 or CHBH 6100.

HDFS 6090 cannot substitute for CBHS 6612 or CHBH 6100.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**HDFS 6100 - Risk and Resilience (3 Credits)**

Risk and resilience processes in human development. Prereq: 6 credits in behavioral sciences.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**HDFS 6120 - Adolescent Development (3 Credits)**

Course focuses on current theoretical and empirical issues in the field of adolescent development. Students will critically evaluate current research in the field of adolescent development, debate central issues, and gain in-depth knowledge of one topic of their choice. Prerequisite: One course in adolescence; three credits of upper-division behavioral science; or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**HDFS 6500 - Research Methods II (3 Credits)**

This course covers a range of quantitative methods with an emphasis on parametric inferential statistics. It will focus on parametric versions of both univariate and multivariate statistics along with important assumptions of each test statistic, when each should and should not be used, and how to compute each test statistic using SPSS.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**HDFS 6950 - Independent Study - Human Development (1-18 Credits)**

Independent study in human development and family studies.

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Human Medical Genetics (HMGP)

**HMGP 7600 - Survey of Human Genetics (3-4 Credits)**

Survey of human genetics, including Mendelian and other types of inheritance, chromosomes and cytogenetics, molecular and biochemical basis of genetic disease, quantitative genetics and gene mapping, developmental and cancer genetics, clinical genetics, and genetic screening and prenatal diagnosis.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**HMGP 7610 - Topics in Human Genetics (1-3 Credits)**

Two-semester course based on weekly HMGP seminar series. Students meet with speakers and discuss seminar or related topics and arranged readings. Grade based on class participation and required paper and presentation. Required for 1st, 2nd and 3rd year HMGP students.

Prerequisite: Graduate standing.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**HMGP 7630 - Independent Study in Human Medical Genetics (1-2 Credits)**

Independent study is intended to permit students to carry out directed reading and discussion with a specific faculty member other than their thesis advisor. Consent of the faculty member offering the independent study and the program director are required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**HMGP 7650 - Research in Human Medical Genetics (1-10 Credits)**

Research work in human medical genetics. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**HMGP 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in human medical genetics. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Human Rehab Service-UNC (HRSS)

**HRSS 6100 - Interpretation and Evaluation of Behavioral Research (3 Credits)**

Understanding of applications of appropriate statistical techniques and necessary skills for interpretation and evaluation of research in human services. Emphasizes basic concepts, design and utilization of behavioral research.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Univ of Northern Colorado.

Typically Offered: Spring.

# Immunology (IMMU)

## IMMU 6110 - Introduction to Bioinformatics (1.5 Credits)

An intensive course aimed to introduce basic theory and concepts of commonly used bioinformatics workflows encountered in immunology and microbiology NGS data sets. This course is also designed as a workshop; all workflows will be directly applied to pre-existing datasets. Pre-requisite: At least one semester of any R programming.

Grading Basis: Letter Grade

Restricted to IMMU, MICB, MICR, BSBT students

Typically Offered: Spring.

## IMMU 6210 - Intensive Advanced Immunology (3 Credits)

During this intensive-style class, students will attend daily lectures and laboratories in Week 1, then complete a 2-week project with final presentations in Week 3. In Week 1, Students will be fully immersed from 8 am to 6 pm with reading/prep in the evenings. Pre-requisite: AGRAD  
Grading Basis: Letter Grade  
Typically Offered: Spring.

## IMMU 7530 - Introduction to Immunology (2 Credits)

This course is an introductory immunology course designed to provide students with an introduction to the field of immunology. This class is intended to introduce students who already have some background in general biology and cell biology to the study of the immune system. Grading Basis: Letter Grade  
Typically Offered: Spring.

## IMMU 7602 - Special Topics in Cancer Immunology (1 Credit)

This interactive course aims to introduce important concepts, models and approaches in cancer immunology. The focuses are mechanisms relevant to the immune response in the context of cancer development and immunotherapy. Students are assessed via presentations, participation, and a paper. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

## IMMU 7603 - Special Topics-Immunologic Basis of Human Disease (1 Credit)

Perform translational studies, as they either test hypotheses established in mouse models or lead to new testable hypotheses that will advance understanding of pathogenesis of human disease. Greater understanding of disease pathogenesis will allow for development of new treatment options. Prereq: IMMU 7662.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

## IMMU 7604 - Special Topics in Signal Transduction in the Immune System (1 Credit)

In-depth course, designed primarily for immunology graduate students in their second year, who have completed IMMU 7602. The course covers selected topics (8 in all) encompassing a wide range of topics in signal transduction through receptors important in the immune system. Prereq: IMMU 7662.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

## IMMU 7605 - Workshop in Scientific Writing (1 Credit)

This workshop will consist of one session weekly for students to be critiqued on writing assignments designed to provide basic training in writing grant proposals and manuscripts. Grading Basis: Letter Grade  
Typically Offered: Spring.

## IMMU 7607 - Science as a Profession (1 Credit)

This course discusses ethical issues, conflicts of interest, and regulations for working with humans or animals. It also includes instruction on writing papers and grants, giving effective presentations and advice on finding jobs in academia and industry. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

## IMMU 7608 - Immunology of Infection (1 Credit)

Students will discuss and present selections from the current literature on topics related to the interaction of the immune system with microbial causes of infectious diseases. Grading Basis: Letter Grade  
Typically Offered: Spring.

## IMMU 7609 - Immunology of Autoimmune Diseases (1 Credit)

Following a brief introduction on autoimmune diseases by the instructor, the students will discuss and present assigned papers from the current literature on topics related to immune mechanisms and cell types leading to various autoimmune diseases. Grading Basis: Letter Grade  
Typically Offered: Spring.

## IMMU 7630 - Overview of Immunology (2 Credits)

An overview course in immunology for non-immunology-program graduate students. The focus is human relevance and the practical use of immunology in a variety of fields. Students gain experience applying immunological knowledge to their own area of interest. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

## IMMU 7650 - Research in Immunology (1-5 Credits)

Research work in immunology. Prereq: Consent of Instructor. Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

## IMMU 7662 - Immunology (6 Credits)

This course covers the basic principles of the immune system. Included are discussions on (I) the innate and adaptive immune responses, (II) the molecular and cellular basis of immune specificity and (III) aspects of clinical immunology. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

## IMMU 8990 - Doctoral Thesis (1-10 Credits)

Doctoral thesis work in immunology. Prereq: Consent of Instructor. Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 10.  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

## Integrated Physiology (IPHY)

### IPHY 6001 - Human Physiology (4 Credits)

This course in Physiology is designed to provide an understanding of the functions of cells, tissues, and organs in the human body and the overall integration of organ functions in the body as a whole. Course restrictions: B.A. or B.S. including Biology, Chemistry and Physics  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

### IPHY 7650 - Research in Integrated Physiology (1-10 Credits)

Research work in Integrated Physiology. Prerequisite: Consent of Instructor.

Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

### IPHY 7651 - Reading & Evaluating the Clinical Literature (2 Credits)

Interactive seminar introduces key concepts in clinical study design, basic statistics, & clinical research assessment. Become familiar with clinical study types; rigorously assess the literature; and appreciate how to incorporate clinical data in bench research. Requires presentations, manuscript review, and discussion. Pre-Req: Successful completion of the first year of PhD courses or two years of MSTP training.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

### IPHY 7652 - Special Topics in Integrated Physiology (1-3 Credits)

This course provides instruction in a specialized area of Integrated Physiology. Course content and the extent of the course varies from year to year. Prerequisite: Enrollment in PhD Program in Graduate School.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 3.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

### IPHY 7800 - Comprehensive Physiology (6 Credits)

The course will provide an understanding of the function, regulation and integration of human organ systems. Content will include introductory to cell physiology and all major organ systems and will be taught by experts in each organ system.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

### IPHY 7801 - Molecular Mechanisms of Reproductive Endocrinology and Metabolism (3 Credits)

Endocrine systems will be covered from the molecule to the systems level. Pituitary secretions actions/ regulation, regulation of water, ion, calcium balance, regulation of metabolism including insulin secretion/action will be discussed, the context of normal physiology, the mechanisms of endocrine dysfunction. Prereq: Core courses IDPT 7811, 7812, 7813, 7814, 7815. Restrictions: CU-AMC Graduate students; others by permission of the Course Director.  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Spring.

### IPHY 7802 - Grant Proposal Writing (1 Credit)

This course is a practical workshop in grant-writing culminating in a student-led mock review panel including course participants. Students will examine various proposal types/formats, then write their own proposal in the format of an NIH NRSA fellowship application. Pre-Requisite: Students with adequate physiology background.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

### IPHY 7840 - Advanced Topics in Cell Signaling (1 Credit)

Students select topics of interest in the area of cell signaling and receive one-on-one instruction from expert faculty. Each one-credit topic will be taught for 5 weeks. Course work will include reading and discussing papers as well as practical exercises. Prereq: Consent of Instructor  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 9.  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

### IPHY 8990 - Doctoral Thesis (1-10 Credits)

Doctoral thesis work in physiology.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

## Interdepartmental School of Medicine (IDPT)

### IDPT 5000 - Foundations Doctoring I (2 Credits)

The course is designed to expose students to basic clinical skills necessary for physicians. Each week, students spend one afternoon either learning communication/physical exam skills/professionalism on campus or practicing their clinical skills with a preceptor off campus.  
Grading Basis: Medical School  
Typically Offered: Fall, Spring.

### IDPT 5001 - Human Body (7 Credits)

Human Body covers the anatomy and embryology of the back, extremities, trunk, head and neck. Students will dissect human cadavers and study computer generated cross-sections and radiological images. Clinical case discussions will be integrated with physical exam material.  
Grading Basis: Medical School  
Typically Offered: Fall.

### IDPT 5002 - Molecules to Medicine (8 Credits)

Molecules to medicine is an integrated approach to cell biology, biochemistry, molecular biology and human genetics presented in a context that emphasizes clinical issues.  
Grading Basis: Medical School  
Typically Offered: Fall.

### IDPT 5003 - Blood and Lymph (4 Credits)

Blood and Lymph covers the basic and clinical concepts underlying immunology, hematology, rheumatology, and malignancies of the blood. Histology, genetics, biochemistry, and ethical issues are integrated into the course concepts. Contact hours are divided equally between lecture and discussion groups.  
Grading Basis: Medical School  
Typically Offered: Spring.

**IDPT 5004 - Disease and Defense (5 Credits)**

Course covers principles of biometrics, pharmacology, pathology and infectious disease. Topics include mechanisms of tissue damage and repair. Dermatology is presented as an "Organ System", including structural and function, pathology, pathophysiology and pharmacology. Grading Basis: Letter Grade with IP  
Typically Offered: Spring.

**IDPT 5005 - Cardiovascular/Pul/Renal (9.5 Credits)**

Course is an interdisciplinary approach to the cardiovascular, pulmonary, and renal systems, including anatomy, histology, physiology, pathophysiology, pathology, pharmacology, and development. Emphasis is on how the major organs work together to regulate blood pressure and fluid, electrolyte, and acid-base balance.

Grading Basis: Letter Grade

Typically Offered: Spring.

**IDPT 5006 - Leading with Emotional Intelligence for Physicians (1-2 Credits)**

This course will engage current medical students in active learning of the knowledge, skills, attitudes and behaviors necessary for embracing conflict and ensuring success and happiness as a 21st Century physician leader. Students will learn how to improve their emotional intelligence and conflict management skills.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5010 - First Course (1 Credit)**

This immersive course provides students with basic tools needed to begin medical school with confidence and success. It will encourage curious, life-long learning, foster commitment to serve the profession, our patients & society, and begin the development of physician leaders capable of transforming the health of diverse communities.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5011 - Biomedical Innovation and Entrepreneurship (2 Credits)**

This course will introduce medical students to the principles & practice of healthcare innovation & entrepreneurship.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5012 - Introduction to Global Health Research (1-2 Credits)**

This seminar series is open to medical students and CHA/PA students in the Global Health Track. Topics include pre-travel health and safety considerations, ethical issues in global health, human rights and health, as well as research and philosophical tools for culturally appropriate care in a sustainable fashion. The class is required of Global Health Track Students. The University of Colorado requires that all Medical Students planning a global health project for their MSA be in the global health track and participate in this course.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5013 - Medical Spanish (FCB) (1-2 Credits)**

.Course seeks to increase FCB 1st yr Med student comfort level interacting with Spanish-speaking patients. It is intended to be a precursor to clinical or community settings with Spanish-speaking patients. Hope to introduce students to the work done at CSU satellite campus in Todos Santos.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5014 - Narrative Medicine: Digital Stories and Community Engagement (1-2 Credits)**

After introduction to digital storytelling basics from experts, learners will create their own stories to practice the skills of making a narrative video & appreciate & honor the vulnerability inherent in sharing a personal story.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5016 - Foundational Principles (9 Credits)**

Introductory science content is encapsulated into a solid foundation upon which to construct more complex medical sciences knowledge while advancing students' professional competencies. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5017 - Hematologic & Lymphatic Systems (5 Credits)**

This course focuses on the basic science and clinical concepts underlying the origin, development, normal function, and related hematologic and immunologic disease states. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5018 - Gastrointestinal System (7 Credits)**

Clinical and basic science topics related to the normal function and diseases of the gastrointestinal tract and accessory organs will be merged with an overview of nutrient metabolism. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5019 - Pulmonary & Cardiovascular Systems (10 Credits)**

Fundamentals of physiology, pharmacology, immunology, and anatomy will dovetail into the pathophysiology of pulmonary and cardiovascular diseases to facilitate diagnosis and treatment. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 5020 - COMPASS (1-2.5 Credits)**

COMPASS is a program developed to inspire and support students in maximizing their personal and professional potential. Students will complete comprehensive assessments of their clinical skills and medical knowledge and participate in activities and coaching to support their own professional growth and development.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**IDPT 5021 - Renal & Urinary Systems (7 Credits)**

This course encompasses normal physiology, histology and anatomy as well as the pathophysiological dysfunction and pharmacology of the renal & urinary systems. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**IDPT 5022 - Nervous System (8 Credits)**

A foundational, interdisciplinary approach to nervous system structure and function in health and disease will include neuroanatomy, pathophysiology, and pharmacology, among others. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5023 - Musculoskeletal & Integumentary Systems (7 Credits)**

This interdisciplinary course incorporates the anatomy, physiology and histology of skin, muscle, bone, peripheral nerves, cartilage, and ligaments with associated clinical conditions. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5024 - Mind & Behavior (5 Credits)**

This course introduces the interplay between the biological, developmental, environmental, and psychological processes underlying human behavior, cognition, and emotions. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5025 - Endocrine & Metabolic Systems (7 Credits)**

Biochemistry, pathology, physiology, immunology, and pharmacology are combined with the clinical approach to diagnosis and treatment of disorders of the endocrine system. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5026 - Reproductive System & Life Cycle (9 Credits)**

The development, physiology, pathology, and pharmacology of the male and female reproductive systems are addressed along with changes in health and wellness across the lifespan. Integrated Health & Society and Clinical Skills content will develop students' knowledge and skills to provide effective, equitable patient-centered care.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5027 - IHI Open School Basic Certificate: Introduction to Global Health (1-2 Credits)**

Earning the IHI Open School Basic Certificate in Quality and Safety boosts your knowledge and skills — and proves to educators and residencies you are serious about changing health care for the better. To receive the Certificate, you must complete the following 13 Open School courses: QI 101–QI105, PS 101–105, TA 101, PFC 101, and L 101.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5028 - One Health Elective (FCB) (1-2 Credits)**

One Health is a transdisciplinary concept that focuses on issues at the intersection of Human, Environmental, and Animal Health. The One Health Practicum will bring together groups of interdisciplinary undergraduate, graduate, and professional students to evaluate real-world One Health challenges in the City of Fort Collins.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 5029 - S.A.B.E.S. Spanish Acquisition Begets Enhanced Service (2 Credits)**

Students will learn and practice the language skills they need to communicate effectively with their Spanish speaking patients. The course is delivered in a hybrid format that allows students to complete weekly lessons and quizzes at their own pace and then join the live (synchronous) online sessions to practice the Spanish they are learning in the lessons.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5030 - Anatomy Autopsy Dissection (3 Credits)**

Gain hands-on gross anatomy experience through cadaver dissection using a modified En Masse Autopsy Protocol. After organ bloc removal, students will complete additional dissections to expose key structures and relationships in the gastrointestinal, cardiovascular, pulmonary, urinary, reproductive and musculoskeletal systems. Pre-requisite: Students must have completed the Plains year and successfully passed each of the following 1st year courses with a significant gross anatomy component (GI, PCV, Neuro, MS-I) and successfully passed the anatomy lab practical exams in Compass 2, 3, and 4.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5037 - History of Race in Medicine (2 Credits)**

This course analyzes the history of medical racism from the colonial period to the present. Using secondary sources from medical historians and 1910 Flexner Report, the course will explore how slavery and systemic racism influenced medical education for minoritized populations, specifically Black Americans. Students will use critical race theory as a theoretical framework critically analyze the construction of medical education for Black students within the historical context of the time period.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 5090 - Mentored Scholarship I (1 Credit)**

A four year requirement for students to pursue and complete a mentored scholarly project and a capstone presentation. Project can be in one of the following thematic areas: basic and clinical research; epidemiology and public health; humanities and social sciences.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 5094 - Research Track Plains Elective (1-2 Credits)**

The goals of the Research Track are: 1) to foster student development of an identity as a physician capable of being deeply involved with and completing research efforts and for graduates to acquire the knowledge and skills to successfully complete the components of a research project. This elective is only for students who have been accepted into the Research Track in the first trimester.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 5095 - Research Track Phase I (1 Credit)**

Students complete training in citation manager software and initiate mentor-guided research. Prerequisite: Required if enrolled in Research Track. Instructor consent required. Course Restrictions: Must be a Research Track Student, this course replaces Mentored Scholarship requirement.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 5096 - Summer Research Phase I (1 Credit)**

This course is for students desiring to do research at CU or other institutions during the summer in between first and second year.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**IDPT 5200 - Introduction to Global Health (1-2 Credits)**

This one-credit course is designed to introduce clinicians in training to critical topics in global health. The course consists of lectures and group discussions lead by experts in a variety of global health-related diseases, public health priorities, and health policy issues.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**IDPT 5600 - Topics in Biomedical Science and Research (4 Credits)**

Research internship for undergraduate fellows in Graduate Experiences for Multicultural Students (GEMS) Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**IDPT 6000 - Foundations Doctoring II (2 Credits)**

This course is the second year of the longitudinal Foundations of Doctoring curriculum. Each week, students spend one afternoon either learning communication/physical exam skills/professionalism on campus or practicing their clinical skills with a preceptor off campus.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6001 - Nervous System (7.5 Credits)**

Course covers the gross and microscopic anatomy of the nervous system, basic neurobiology and neurophysiology, pharmacology, neuropathology, and basic neurologic and psychiatric examination skills. Emphasis is on the relationship between basic processes and functional systems to clinical phenomena and behavior.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 6002 - Digest/Endo/Metaboli Sys (9.5 Credits)**

This interdisciplinary course integrates clinical and basic science topics related to the normal function and diseases of the gastrointestinal and endocrine systems. The biochemistry and physiology of nutrient metabolism in health and disease will also be covered.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 6003 - Life Cycle (5 Credits)**

Course provides an interdisciplinary approach to the normal biology and pathobiology of the male and female reproductive systems, reproduction and pregnancy, the fetus, newborn and child, aging, and end of life.

Clinical cases and physical examination will be integrated throughout.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 6004 - Infectious Disease (4.5 Credits)**

This course integrates microbiology, infectious diseases, and antimicrobial pharmacology. Content covers pathogenic microorganisms (bacteria, viruses, fungi and parasites), host-pathogen interactions, microbial virulence determinants, host immune responses, signs and symptoms of disease presentation, epidemiology, laboratory diagnosis, prevention (vaccines) and therapy (antimicrobials).

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 6006 - Obesity and Cardiovascular Disease (1 Credit)**

The course will cover how obesity relates to cardiovascular disease including basic and clinical mechanisms on the pathophysiology of vascular biology, insulin resistance, risk factors, and outcomes, and how therapeutic interventions modify cardiovascular disease risk.

Requirements: Course will span two semesters, Fall and then Spring

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**IDPT 6010 - Spark Patient Change with Motivational Interviewing (1 Credit)**

Students will learn and practice practical techniques to motivate patients to change their behaviors (e.g. smoking cessation, healthy eating, physical activity). This elective will help students prepare for patient interviews during preceptor, clinical rotations, and their future career.

Course available to Phase I and II students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 6020 - Community Engagement Innovation (1 Credit)**

Transform the community into a classroom by partnering with community organizations to learn advocacy, population health, leadership, cultural competence and resilience. Students will work with the community—instead of for or in the community—with experiential learning supplemented by guided reflection, coaching, and peer-led workshops.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall, Spring, Summer.

**IDPT 6090 - Mentored Scholarship II (1 Credit)**

A four year requirement for students to pursue and complete a mentored scholarly project and a capstone presentation. Project can be in one of the following thematic areas: basic research, clinical research, epidemiology and public health, humanities and social sciences.

Grading Basis: Medical School

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**IDPT 6094 - Master Degree Extended Study Course (1 Credit)**

A scholarly project approved by the Master's committee to act as a capstone for students obtaining the Master's in Medical Science degree. Pre-requisite: Completion of Phase 1 and Phase 2 of the SOM curriculum successfully.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 6095 - Research Track Phase II (1 Credit)**

1. Demonstrate progress towards the completion of your research project and publicly communicate understanding of the project to others a.

Present WIP to peers and faculty in an oral presentation b. Effectively respond to comments and questions from peers about your research efforts c. Identify scientific questions when others present

Prerequisite: Required if enrolled in Research Track. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6613 - Culinary Medicine Elective (1 Credit)**

Medical students will work along side culinary students in the kitchen for hands-on culinary and nutrition training. In addition to preparing recipes and discussing various aspects of the recipes, students will also complete modules, readings and discussions about a variety of nutrition topics and nutrition-related diseases.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6614 - Introduction to Clinical Ultrasound (1 Credit)**

Students will be introduced to ultrasound scanning techniques to perform four of the primary clinical ultrasound exams - gallbladder, heart, aorta, soft tissue/musculoskeletal. Online modules and hands-on practice will be used in this course. Course restricted to Phase II students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6618 - Charting Your Career Path (1 Credit)**

The course is based on vocational theory and includes opportunities to learn about yourself and your interests, values, personality, and skills to support career decision-making. Students will take the Myers-Briggs Type Indicator, complete self-assessment activities on the CIM website, and explore career options through shadowing. Phase I students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6619 - LGBTQ Health and Healthcare (1 Credit)**

The course provides health professional students the basic knowledge and skills to provide culturally responsive, clinically competent care to lesbian, gay, bisexual, and transgender (LGBT) patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6621 - Fun History of Medicine (1 Credit)**

During "History of Medicine for the 21st century: adding historical perspective to today's medical practice"; students will acquire and apply historical knowledge to provide answers to clinical cases from different historical periods; in an interactive, fun and engaging learning environment. Requisite: Can enroll in Fall and Spring or only one of the two semesters. Phase I & II students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6623 - Refugee and Immigrant Health I (1 Credit)**

Students will learn about the integration process that refugees go through and common medical and mental health diagnoses they receive. Discussions, panels, and lectures will prepare students to provide culturally effective medicine to any population.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6625 - Personalized Medicine in Health Care (2 Credits)**

This interactive seminar series will introduce the concepts of "big data" applied to research, health care and education. Participants will gain a basic understanding of this rapidly emerging field through discussion and exploration of examples and critical issues with campus analytics leaders.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6627 - Directed Study Basic Science (1-24 Credits)**

This course provides an opportunity for medical students to further develop and refine their knowledge of the basic sciences. Prereq: Course director approval required.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 6629 - Sabes Spanish Immersion (1 Credit)**

SABES is a student-led course that meets on campus, October through mid-March. Sessions focus on improving vocabulary and grammar and strengthening medical Spanish language skills. There are 4 classes, to accommodate all ability levels. Students have the opportunity to practice taking medical histories with native Spanish speakers.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6630 - Spanish Interpretation (1 Credit)**

This course is for Phase I & II students. This course will equip students who have prior Spanish proficiency with vocabulary, skills, and ethical practices of Spanish medical interpretation. Students partake in a 10-week course, and if they successfully pass the certification exam, will interpret in the student-run DAWN Clinic. Requisite: Must pass proficiency exam or have successfully completed the SABES course.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 6631 - Mindful Living: Practice of Purposeful and Non-Judgment (1 Credit)**

This course is designed to explore the meaning of mindfulness in everyday life by developing self-awareness, emotional resilience, appreciation of life, and a sense of well-being. Students participate in activities such as meditation, reflective journaling, discussion, and applying mindfulness to music, nature walks, and relationships. Phase I & II students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 6636 - Summer Preceptor Exp (1 Credit)**

The Summer Preceptorship is a clinical elective designed for students between their first and second year of medical school. It may take place in the hospital or in a clinic one afternoon or morning a week during the summer semester. Course requirement: Course director approval required to add course.

Grading Basis: Medical School

Typically Offered: Summer.

**IDPT 6637 - LEADS 1 (2 Credits)**

Max: 20. The course will include monthly seminars and be divided into four thematic sections. Seminar speakers are primarily engaged in leadership/advocacy work in health care. The themes will be further explored by case-based, small group sessions. Elective required for LEADS scholars. Restrictions: Phase 1 students only.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6647 - LEADS 2 (1 Credit)**

Advocacy and Leadership skills applied in case-study. Prereq: IDPT 6637 LEADS 1-Spring Semester Elective. Elective Restrictions: Students who wish to enroll without having completed the spring course in Phase 1 may petition to course director if space allows. Phase 2 students only. 9 wks. Min:10 Max: 20.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 6652 - Key Cncpt Ped Dsablty 3 (2 Credits)**

Grading Basis: Letter Grade

**IDPT 6655 - Asst Tech: Assess Incl I (2 Credits)**

Grading Basis: Letter Grade

**IDPT 6660 - Leadership Competencies for Physicians (1 Credit)**

This course will engage current medical students in active learning of the knowledge, skills, attitudes and behaviors necessary for embracing conflict and ensuring success and happiness as a 21st Century physician leader. Students will learn how to improve their emotional intelligence and conflict management skills.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**IDPT 6665 - Introduction to Global Health (1 Credit)**

This course, required for Global Health Track students, gives a broad overview of important issues in global health, e.g., the HIV epidemic, maternal-child health, humanitarian assistance, clean water and sanitation. Pass/fail based on attendance and final project (1- pager).

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 6667 - Global Health Studies (US) (10 Credits)**

Students and their faculty preceptors will develop a global health project focused on research, education, or community health service. After their project with a global health organization, students will provide a written report and an oral presentation of their project. Course restrictions: Must be enrolled in the Global Health Track.

Grading Basis: Medical School

Typically Offered: Summer.

**IDPT 6668 - Global Health Study Aboard (10 Credits)**

Prior to travel, students and their faculty preceptors will develop a global health project focused on international research, education, or community health service. After their stay abroad, students will provide a written report and an oral presentation of their project. Course restrictions: Must be enrolled in the Global Health Track.

Grading Basis: Medical School

Typically Offered: Summer.

**IDPT 6669 - Global Health Seminar (1 Credit)**

This is a required course for Global Health Track students. This course will help students design and implement their global health projects by addressing the basics of project design, survey development, data collection and analysis.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 6671 - Urban Underserved Care (1 Credit)**

This course, required for all CU-UNITE Urban Track students, is an introduction to important issues in urban underserved health care. Topics include: health disparities, mental health, substance abuse, and care for specific populations such as the homeless and refugee population. Max 30

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6672 - Urban Underserved Care 2 (1 Credit)**

This CU-UNITE required elective is an advanced course regarding issues in urban underserved health care. Topics: Procedural skills development, an interdisciplinary service learning project in the community, discussion of personal qualities needed for serving urban, underserved populations and provider wellness. Restrictions: Only for CU-UNITE/Urban Underserved Track students.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 6674 - Digital MD: Social Media & Scholarship (1 Credit)**

Explore online educational resources, personal branding, and digital professionalism. Participants will gain familiarity with social media networks and develop their own online brand. Capstone includes an online digital scholarship project (e.g. podcast, video, infographic) #MedEd #FOAMed

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 6840 - Independent Study (1-9 Credits)**

Grading Basis: Medical School

**IDPT 7000 - Foundations Doctoring III (0.5-1 Credits)**

This course is the third year of the longitudinal Foundations curriculum. Students spend one afternoon, 2-3 times a month in the office of a generalist or specialist physician. Credit hours by semester = 0.5 summer, 1.0 fall, 1.0 spring.

Grading Basis: Medical School

Repeatable. Max Credits: 2.5.

**IDPT 7001 - Integrated Clinicians 1 (2 Credits)**

Course offered spring semester prior to beginning Phase III clerkship blocks. The course is designed to assist with the transition to the clerkship blocks. Course material will provide students with reinforcement of the fundamental physical exam and presentation skills and important information about the clinical courses.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 7002 - Integrated Clinicians 2 (2 Credits)**

Through didactic and small group sessions, the course will teach advanced clinical skills, translational basic science, and thread material that is vital to doctoring, but underrepresented in the clinical blocks. 1 week.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 7003 - Integrated Clinicians 3 (4 Credits)**

Through didactic and small group sessions, the course will teach advanced clinical skills, translational basic science, and thread material that is vital to doctoring, but underrepresented in the clinical blocks. 2 weeks.

Grading Basis: Medical School

Repeatable. Max Credits: 4.

Typically Offered: Spring.

**IDPT 7005 - Pre-Clerkship Basecamp (4 Credits)**

Prior to beginning clinical clerkships, students will complete the pre-clerkship basecamp where they will solidify and advance their knowledge, clinical reasoning, psychomotor and communication skills for success during their clinical rotations. This course was previously offered as the Integrated Clinicians 1 Course.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 7009 - LGBT Health Elective (8 Credits)**

The course provides health professional students the basic knowledge and skills to provide culturally responsive, clinically competent care to lesbian, gay, bisexual, and transgender (LGBT) patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.



**IDPT 7010 - Hospitalized Adult Care (16 Credits)**

Eight week block focused on the care of the adult inpatient. Students are assigned to two sites, each for 4 weeks: University of Colorado Hospital, Denver Health, Presbyterian St. Luke's, Veterans Affairs Medical Center, Exempla St. Joseph's, Rose Medical Center.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7012 - Longitudinal Integrated Clerkship (2-6 Credits)**

This is a multidisciplinary course required of students participating in the LIC. Students will be required to manage cohorts of longitudinal patients, participate in projects and small group discussions, engage in reflective practice and complete logging of clinical requirements. Department Consent Required.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7013 - Longitudinal Internal Medicine (LIC) (2-6 Credits)**

This course introduces adult medicine with emphasis on acute illness, chronic disease management, and preventive care. Students will combine inpatient and ambulatory experiences. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7020 - Infant/Adolescent Care (12 Credits)**

This block introduces clinical objectives to achieve competency in pediatric medicine, emphasizing illness and wellness of children and families, growth, development, physical and mental well-being. Students combine hospital and ambulatory experiences in Denver and other Colorado communities.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7021 - Musculoskeletal Care (4 Credits)**

This block combines PM&R, Orthopaedics, Rheumatology, basic science, and thread topics to develop competency in history and physical exam skills and the use of laboratory data and basic imaging studies to diagnose, treat, and prevent abnormalities of the musculoskeletal system.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7022 - Longitudinal Pediatrics (LIC) (2-6 Credits)**

This course introduces pediatric medicine, emphasizing illness and wellness of children and families, growth, development, physical and mental well-being. Students combine inpatient, nursery, and ambulatory experiences. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7030 - Obstetrics and Gynecology (8 Credits)**

Students will work in OB/GYN clinics, labor and delivery, OB and GYN wards, and the O.R. They will learn a newborn exam and fundamentals of newborn care. Course offered at University Hospital, Denver Health Medical Center or an AHEC site.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7031 - Emergency Care (4 Credits)**

An introduction to the initial evaluation and management of emergently presenting problems in adults and children. Emphasis on recognition, differential diagnosis, and stabilization of shock and trauma. Students will also be exposed to pre-hospital care and concepts of triage.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7032 - Longitudinal Obstetrics/Gynecology (LIC) (2-6 Credits)**

This course focuses on care of women in OB/GYN clinics, labor and delivery, OB and GYN wards, and the operating room. Additionally, students will learn a newborn exam and fundamentals of newborn care. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7033 - Longitudinal Emergency Med (LIC) (2-3 Credits)**

This course will provide an introduction to the initial evaluation and management of emergently presenting problems in adults and children. Emphasis will be on disease recognition, differential diagnosis, and stabilization of shock and trauma, as well as pre-hospital care and concepts of triage. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**IDPT 7040 - Psychiatric Care (8 Credits)**

Students will work closely with attendings and residents to care for adults and/or children. Students have a choice of twelve (12) unique clinical settings including emergency department, consult service, inpatient and outpatient.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7041 - Neurologic Care (4-8 Credits)**

Students will participate in the diagnosis and treatment of patients with a wide variety of acute and chronic neurologic disorders. Formal teaching is provided in Attending Rounds, student seminars, resident seminars and departmental Grand Rounds.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7042 - Longitudinal Psychiatry (LIC) (2-6 Credits)**

This course will focus on psychiatric care of adults and children, and clinical experiences will include ambulatory settings, inpatient units, psychiatric emergency room, consults, and psychiatric specialties. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7045 - COVID Elective (1-8 Credits)**

This 2-4 week elective utilizes a combination of online modules, virtual sessions, and service learning, research, education, or narrative component to help students learn and apply concepts around the COVID-19 pandemic to immediately care for patients and assist in community efforts to mitigate adverse consequences of emerging diseases. Crosslisted as IDPT 8045.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.



**IDPT 7050 - Peri/Operative Care (16 Credits)**

While gaining experience in surgery and anesthesiology, students study surgical diseases and participate in the operative care and delivery of anesthesia during the peri-operative period. Assessment and management of common inpatient and ambulatory procedures are emphasized from initial patient referral to discharge.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7052 - Longitudinal Surgery (LIC) (2-6 Credits)**

This course focuses on surgical diseases. Students will participate in operative care and peri-operative care. Assessment and management of common inpatient and ambulatory procedures are emphasized from initial patient referral to discharge. Students will combine ambulatory, inpatient and operating room experiences.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7054 - Interventional Radiology - (Denver Health) (8 Credits)**

A hands on clinical rotation with the IR section at Denver Health. This rotation exposes students to all aspects of IR including procedural skills, patient encounters, and targeted medical imaging interpretation. A useful course for students entering any field that interact with IR, as well as students considering a career in Radiology.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7055 - Telehealth Selective Rotation (8 Credits)**

An exploratory course offering a broad array of telehealth experiences such as virtual urgent care, psychiatry, dermatology, stroke. Opportunities will be offered for independent study, scholarly projects and inclusion in business and innovation aspects of telehealth. Prerequisites: Pre-Clinical Rotation Coursework Complete.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7056 - Emergency Medicine Elective for Phase 3 Students (8 Credits)**

A 4 week course designed to enhance a students knowledge regarding emergency medicine by completing clinical shifts in multiple emergency departments. In addition, students will complete shifts with other subspecialty and adjunct services which help provide care for patients in the emergency department.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7057 - Integrative Musculoskeletal Medicine (8 Credits)**

This course includes experiences in: PM&R, rheumatology, primary care sports medicine, radiology and will focus on outpatient MSK care including patient presentations, exam, testing and treatment. Managing MSK conditions is essential for practice in internal medicine, family practice, emergency medicine, pediatrics, among others.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7058 - Ophthalmology (8 Credits)**

This course is intended to introduce medical students to the clinical practice of ophthalmology. The course will provide exposure to numerous sub-specialties within the field, allowing students to shadow within ophthalmology departments at the University of Colorado, Children's Hospital, the VA, and Denver Health. Prerequisites: Phase III Students Only.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7059 - Anesthesiology Selective (UH) (8 Credits)**

Students will gain knowledge and skills related to the clinical practice of anesthesiology working as part of the anesthesiology team. Knowledge gained will pertain to pre-operative assessment and optimization, intraoperative and post-operative care. Skills gained will relate to vascular access, airway, pressors, ventilators and more.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7062 - Longitudinal Family Medicine (LIC) (2-6 Credits)**

This course focuses on broad spectrum family medicine including acute and chronic ambulatory care, hospital care, and obstetric care of adults and children. Students will participate in the provision of comprehensive patient-centered primary care and will focus on the longitudinal acute and chronic disease management, prevention and health. Department Consent Required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7070 - Community and Primary Care (16 Credits)**

Students will be immersed in a primary care setting and experience a broad scope of care in the context of the communities in which patients live. This course emphasizes ambulatory clinical skills, patient-centered care, critical appraisal and application of national screening guidelines, and inter-professional collaboration.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 7075 - VA Sequential Training Program (1-2 Credits)**

The VA Sequential Training (VAST) Program is a 6-month clinical immersion with mixed-methods educational content focused on professional identity development, resiliency, and unique skills needed to successfully care for a Veteran population.

Grading Basis: Medical School

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**IDPT 7080 - Integrated Longitudinal Medicine Clerkship (16-32 Credits)**

The ILMC is a unique 16-week longitudinal clerkship allowing students to fulfill competencies for HAC, AAC and the RCC blocks in one continuous teaching site. Students spend 12 weeks at one learning site preceded by an initial month of HAC in the Denver metropolitan area. Requisite: This course is a longitudinal clerkship integrating components of the Phase 3 HAC, AAC and RAC blocks. Students must be eligible for Phase 3 clerkships. Students must be approved by course director to take the course.

Grading Basis: Medical School

Repeatable. Max Credits: 32.

Typically Offered: Fall, Spring, Summer.

**IDPT 7085 - Integrated Longitudinal Medicine Clerkship (2 Credits)**

This is a multidisciplinary course required of students participating in the ILMC. Focus will be on supervised self-directed and team learning, community involvement, and provision of health care within a community

Grading Basis: Medical School

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**IDPT 7090 - Mentored Scholarship III (1 Credit)**

A four year requirement for students to complete a mentored scholarly project and capstone presentation. Projects can be in one of the following thematic areas: basic research, clinical research, global health, epidemiology and public health, humanities and social sciences.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 7095 - Research Track Phase III (1 Credit)**

Students clarify and plan Phase IV process for completing Research Track requirements. Prerequisite: Required if enrolled in Research Track. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**IDPT 7101 - Clinical Practice Exam (CPE) Formative (1 Credit)**

To advance to Phase IV, students must complete all required Phase III clerkships with passing grades, must complete the required Longitudinal Curriculum elements, the formative CAPE assessment, and successfully pass or remediate the Clinical Practice Exam (CPE).

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 7102 - Clinical Practice Exam (CPE) Summative (1 Credit)**

To advance to Phase IV, students must complete all required Phase III clerkships with passing grades, must complete the required Longitudinal Curriculum elements, the formative CAPE assessment, and successfully pass or remediate the Clinical Practice Exam (CPE).

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring, Summer.

**IDPT 7160 - Philosophical Foundations of Research Ethics (2 Credits)**

This course will examine the philosophical basis for current research ethics practices, address current ethical issues and controversies in biomedical research, and provide students with knowledge and analytical skills to address the ethical dimensions of biomedical research.

Crosslisted: CLSC 7160

Grading Basis: Letter Grade

Typically Offered: Spring.

**IDPT 7200 - Scientific Writing for Doctoral Students (2 Credits)**

Scientific writing course for students engaged in research. Focuses on critical thinking, analytical writing, and oral presentation. Taught as a writing workshop, the course emphasizes effective communication with both professional and non-technical audiences. Restrictions: Must have passed preliminary examination; permission of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**IDPT 7301 - Introduction to Life Science Technology Commercialization (1-3 Credits)**

Course designed to familiarize graduate level engineering, business, law, science students with fundamentals of life science technology commercialization including drugs, devices, diagnostics, healthcare IT and platform applications. Three consecutive, 5-week classes, each 1 credit. Open to all graduate level students.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring.

**IDPT 7610 - Phcl & Anat of Cntral Nerv Sys (1 Credit)**

Grading Basis: Letter Grade

**IDPT 7628 - Gerontological Pharm (2 Credits)**

Grading Basis: Letter Grade

**IDPT 7630 - Detertn Prima Struct Biomolecl (4 Credits)**

Grading Basis: Letter Grade

**IDPT 7640 - Molecular/Cell/Dev/Endo (3 Credits)**

Grading Basis: Letter Grade

**IDPT 7642 - Introduction to Laboratory Animal Research (1 Credit)**

Provides basic knowledge on the use of laboratory animals, animal welfare and animal models. Includes general concepts on animal biology and husbandry for most common laboratory species and incorporates essential principles of anesthesia, analgesia, surgery and peri operative care.

Grading Basis: Letter Grade

Typically Offered: Summer.

**IDPT 7646 - Tissue Biology and Disease Mechanism (3 Credits)**

This course provides an overview of organ systems and through 1) a survey of the major systems, including the cellular and molecular mechanisms underlying their function and repair, integrated with 2) common diseases, current therapies, and their mechanistic basis. Prereq: IDPT 7811, 7812, 7813, 7814, 7815 (BIOM Sci Core Courses).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**IDPT 7651 - MSTP Summer Research Rotation (1-3 Credits)**

This course is an 8-10 week laboratory rotation experience in an MSTP training laboratory. Prereq: Acceptance into the MST Program and permission of MSTP Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

**IDPT 7656 - MSTP MSIII Clinical Interval (1-3 Credits)**

Course restricted to MSTP MSIII students for clinical gap intervals. Prerequisite: MSTP director approval required. Instructor consent required

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**IDPT 7727 - Directed Study Clinical Sci (4-24 Credits)**

This course provides an opportunity for medical students to further develop and refine their knowledge of the clinical sciences. Course will include scheduled study time, regularly scheduled practice exams, tutoring in clinic content and test taking strategies. Prereq: Course Director approval required to add.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 7777 - Off Time (0 Credits)**

Grading Basis: Non-Graded

Repeatable. Max Credits: 24.

**IDPT 7850 - Independent Study in Bioethics, Medical Humanities or Health Law (1-6 Credits)**

Course is designed to meet the needs of students interested in conducting advanced studies of issues and topics in bioethics, medical humanities, or health law. Students will work under the direction of the course director on a specific research topic. Course Restrictions: Permission of the instructor. Repeatable for credit within the degree program, but not within the same term. Max credits - 6.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**IDPT 8000 - Foundations Doctoring IV (2-4 Credits)**

2.0 cr. Summer, 4.0 Fall and Spring. This course continues the established student-preceptor relationship from the FDC course. Students attend their preceptor office 2-3 times per month. Students will work with a panel of patients or families serving as their physician under the supervision of their preceptor. Prereq: IDPT 7000.

Grading Basis: Medical School

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring, Summer.

**IDPT 8001 - Tutoring in Clinical Skills (2 Credits)**

Fourth year students are trained to be tutors and utilize these skills with pre-clerkship students developing their physical exam, communication and clinical reasoning skills.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**IDPT 8003 - Geriatrics (4-8 Credits)**

2-4 wks. Max: 2. Geriatrics elective will provide clinic exposure to caring for older adults in the outpatient primary care and sub-acute rehab settings. Learning objectives focus on the special needs of frail or chronically ill older adults and resources beyond direct physician care utilized for this population.

Grading Basis: Pass/Fail with IP

**IDPT 8004 - Integrated Clinicians 4 (4 Credits)**

Through didactic and small group sessions, the course will teach advanced clinical skills, translational basic science and thread material that is vital to doctoring, but underrepresented in the clinical blocks. 2 weeks.

Grading Basis: Medical School

Typically Offered: Spring.

**IDPT 8005 - Integrated Clinicians 5 (4 Credits)**

ICC 5 is a required Phase IV course that will provide you with essential learning opportunities to begin residency and your career to include ACLS, legal malpractice, teaching skills, finance, leadership skills and specialty specific clinical reviews. 2 weeks.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 8007 - Medicine/Pediatrics (4-8 Credits)**

2 or 4 wks. The focus of this elective is to help students discern whether to pursue combined residency training in Internal Medicine and Pediatrics. This course will expose students to possible career paths available for Med-Peds providers within primary and specialty care settings.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

**IDPT 8011 - Clinical Nutrition (4 Credits)**

2 wks. Max:1. Develop your nutrition assessment skills with this elective, tailored to your needs with adult and/or pediatric inpatients and/or outpatients with a variety of conditions and diseases. Active learning with exceptional mentors is emphasized.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8014 - Global Health US Project (8-16 Credits)**

4-8 wks. Max:20. This course is the continuation of IDPT 6667 & 6668. Students will undertake a global health project at a US-based site under the supervision of their designated mentor and local supervisors. Restrictions: Course director approval required to add course.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

**IDPT 8015 - Global Health Intl Project (8 Credits)**

This course is the continuation of IDPT 6667 & 6668. Students will undertake a global health project at an international site under the supervision of their designated mentor and local supervisors.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**IDPT 8016 - Physician as Educator (2 Credits)**

This elective is intended to develop your skills as an effective teacher in clinical and classroom settings. This will include participation in evening teaching workshops and co-precepting.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**IDPT 8018 - Global Health & Disaster (4 Credits)**

This international health course is a two week training offered once a year as part of the University of Colorado School of Medicine Global Health Track. This course prepares its participants for international experiences and future global health work.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 8019 - Team-based Clinical Care (2 Credits)**

A longitudinal, interprofessional course consisting of three activities including Voice of the Patient (opportunity to learn about the patient experience in healthcare), Adverse Event Review (opportunity to analyze a patient safety event), and an Executive Summary Analysis (allowing students to analyze a healthcare system inefficiency).

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**IDPT 8020 - Physician as Advisor (2 Credits)**

1 wk: Physician as Advisor teaches fourth year students to advise peer students in an Advisory College Program. It will prepare students for careers in academic medicine by developing skills in advising, leadership, and administration as well as self-assessment. Longitudinal course that can conflict with other courses. This is a 2 semester course and each semester counts for 2.0 credit hours. Prerequisites: Fourth year standing and selection as a "Student Advisor" in the Advisory College Program.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**IDPT 8021 - Costa Rica Spanish Immersion (4-8 Credits)**

This capstone Spanish immersion course in Costa Rica includes home stays, intensive language instruction and public health and community outreach activities in under-served communities. Student should be passionate about providing care to disadvantaged patients in the USA or abroad and committed to improving their Spanish language skill. Requisite: Contact course coordinator for information. Department Consent required.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8022 - Clinical Medical Spanish (8 Credits)**

Clinical Medical Spanish is a local near-immersion experience in medical Spanish, consisting of classroom instruction in medical Spanish and immersion experiences with various Spanish speaking staff in the health care professions.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 8023 - Refugee Health II (4-8 Credits)**

Refugee health II will provide students with exposure to the social factors which impact upon the health of refugees in the Denver metro region. Students will work with agencies providing services to refugees and participate in home visits and outreach activities within community settings.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 8024 - Leadership Reading Elective (8 Credits)**

This online reading elective is divided into 4 one-week modules and is designed to strengthen a student's understanding of leadership and how it impacts patient care, professionalism, and medical organizations.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8025 - Clinical Ultrasound-Emergency Department-DHHA (4 Credits)**

Clinician-performed US is an integral skill in many specialties. This elective enables students to gain valuable skills in acquisition and interpretation of bedside US exams. This elective involves didactic and hands-on educational opportunities. Students are required to participate in 2 scanning sessions for the SOM US curriculum. Hands-on bedside ultrasound scanning, didactic sessions, video review.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8026 - Critical Care & Procedural Skills (2-4 Credits)**

Formerly EMED8007. Students will participate in an intensive 2-week elective with performance-based, hands-on training in 4 procedural skill areas: airway management, laceration repair, fluid sampling, and vascular access. Students will also complete training in management of critically ill patients using procedural skills and simulated patients. Department Consent

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**IDPT 8027 - Race in Medicine (4 Credits)**

This course explores the role of racism and homogenous beliefs/values in medicine and how cultural incompetence perpetuates health disparities. Students learn about race as a social construct, theories related to class, and the impact of unconscious bias on health outcomes. The class urges students to confront discomfort in healthy ways.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8028 - The Business of Medicine (4-8 Credits)**

This interactive course enhances students' Healthcare System Literacy, i.e. understanding how healthcare is structured, financed, and regulated. With micro- to macro-level modules, the course helps prepare students for personal practice challenges as well as for improving healthcare more broadly.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**IDPT 8029 - Trek Integrated Critical Care (8 Credits)**

Course combines clinical, didactic, and Sim to teach the foundations of critical care medicine, focusing on day-1 intern readiness and creating well-rounded physicians. Topics covered include "sick vs not sick", initial patient stabilization, circulatory and respiratory failure, mechanical ventilation, and common ICU procedures. Only for Phase IV students that have completed their required Acting Internship.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**IDPT 8030 - Laboratory Medicine (8 Credits)**

Lecture-based elective provides a comprehensive overview of Clinical Pathology and laboratory testing. It reviews biochemical, physiologic, and pathologic phenomena on which laboratory tests are based and emphasizes approaches to the ordering, interpretation, and pitfalls of laboratory tests.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 8031 - Genetics and Precision Medicine (8 Credits)**

Genetic and precision medicine is expanding into all aspects of clinical medicine. This course will allow students to delve deeper into this field to be better prepared to practice genomic medicine, manage patients with genetic conditions, and be better prepared to apply emerging therapies (gene therapy, CRISPR, RNA therapies).

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8034 - Virtual Health Center Elective (4 Credits)**

This elective explores the use of virtual health in individual and systems level care. Students will gain confidence caring for patients over video, participate in system-wide sepsis care, and explore many unique applications of technology to health care at the Virtual Health Center.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8035 - International Experiences (4-16 Credits)**

This course allows fourth year students to complete an international experience at an approved and vetted international site. The experience may include clinical work, language immersion, or a combination of both.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.



**IDPT 8040 - Physician as Healthcare Improver (2-4 Credits)**

Students complete 16 IHI Open School on-line courses to earn their Basic Certificate of Completion. Course content includes: quality improvement, patient safety, leadership, patient/family-centered care, and managing health care operations. Students also reflect on learning and implications for future career.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**IDPT 8041 - Quality Improvement Practicum (4-8 Credits)**

Students complete IHI Open School on-line courses in order to provide basic QI Knowledge. Students join an interprofessional team engaged in a quality improvement project.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**IDPT 8045 - COVID Elective (4-8 Credits)**

This 2-4 week elective utilizes a combination of online modules, virtual sessions, and service learning, research, education, or narrative component to help students learn and apply concepts around the COVID-19 pandemic to immediately care for patients and assist in community efforts to mitigate adverse consequences of emerging diseases. Crosslisted as IDPT 7045

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**IDPT 8049 - Multiple Chronic Conditions (8 Credits)**

This course explores current models of care for populations with Multiple Chronic Conditions (MCC), identifies barriers and gaps in current care and systems, and assesses impact of chronicity/disability at population and systems levels.

Grading Basis: Medical School

Typically Offered: Fall.

**IDPT 8050 - Mental Health-Colorado Springs (4-8 Credits)**

Students will work with a mental health team embedded within a primary care clinic, with a goal of improving primary care provider comfort in identifying and treating common mental health conditions.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8051 - Infectious Diseases - Colorado Springs (4-8 Credits)**

Students work with Infectious Disease clinical faculty seeing patients in C. Springs community-based setting. Students see patients in outpatient clinic, inpatient consultation, and the infusion center. This course is designed for students looking to deepen their understanding of the diagnosis, management, and treatment of acute infection

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**IDPT 8052 - Introduction to Public Health-Colorado Springs (4-8 Credits)**

The principles of Population Health are essential for future physicians to understand. Physicians function within a larger community of allied healthcare providers to include Public Health professionals. Social and ecological factors play a greater role in the health of communities than clinical interventions. Course offered Aug and Oct.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Summer.

**IDPT 8053 - Medical Improvisation (4 Credits)**

The Medical Improvisation elective uses interactive improvisation theater techniques to increase learner ability and confidence in patient-centered communication. Prior research has established Medical Improvisation's suitability for both advanced and beginning clinicians and multiple medical schools have incorporated this curriculum.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8054 - CSB Community Engagement (4 Credits)**

Community Engagement provides CSB students mentorship to guide community-based collaborations and project development. Participants can advance PEAK partnerships or pioneer new collaborations.

Quarterly small group "Community Lab" explores goals, outcomes, obstacles, scholarship, and reflection related to community engagement.

Requisite: Students must be graduates of the Colorado Springs Branch's COSMIC LIC program as coursework builds off of unique elements of the CSB Phase 3 curriculum.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**IDPT 8055 - Immunology and Immunotherapy (4-8 Credits)**

This course will investigate the cellular and molecular processes necessary to achieve an advanced understanding of how the immune system maintains balance and operates in health and disease. Recent immunotherapeutic advances that have revolutionized treatment options, such as CAR-T and checkpoint blockade, will also be examined. Only for Phase IV students

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8056 - Global Health and Underserved Populations (4-8 Credits)**

This course will cover approaches to optimize medical care of vulnerable groups living in developed (global health without travel) and underdeveloped settings (global health) taking into account large scale forces (social, economic, political) that determine who falls ill and who has access to adequate healthcare. Only for Phase IV students

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8057 - Advanced Neuroscience (8 Credits)**

This course will integrate advanced basic science and clinical science in the field of neuroscience. The curriculum will be designed for direct integration of neuroanatomy, neurophysiology and neuropharmacology with clinical neurology, neurosurgery, neuroradiology, and neuropathology. Only for Phase IV students

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**IDPT 8058 - Connections in Cardiovascular Medicine (4-8 Credits)**

This course is designed for post-clinical year medical students who wish to enhance their ability to utilize basic scientific principles and knowledge in the practice of cardiovascular medicine. Only for Phase IV students.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**IDPT 8059 - Space Med: Human Spaceflight & Medical Risk Assessment (8 Credits)**

Space Medicine: Human Spaceflight Factors & Medical Risk Assessment. This course will focus on the evidence based medicine process to quantify medical risk of both common and space-specific conditions, as well as include a longitudinal curriculum on space medicine, taught by NASA physicians based at the Johnson Space Center in Houston. Grading Basis: Pass/Fail Only  
Typically Offered: Fall, Spring, Summer.

**IDPT 8090 - Mentored Scholarship IV (1-8 Credits)**

A four year requirement for students to complete a mentored scholarly project and a capstone presentation. Project can be in one of the following thematic areas: basic research, clinical research, global health, epidemiology and public health, humanities and social sciences. Grading Basis: Medical School  
Repeatable. Max Credits: 8.  
Typically Offered: Fall, Spring.

**IDPT 8091 - MSA Phase IV Preparation (8 Credits)**

Students work intensively with mentors on their chosen MSA Project. Students critically review background literature, define a question/hypothesis, develop and implement methods and study design, collect data, analyze and interpret data, and submit written progress reports for their MSA Project. Prereq: MSA form required. Prior approval of Associate Dean for Student Affairs, Mentor, and Course Director required. Grading Basis: Medical School  
Repeatable. Max Credits: 8.  
Typically Offered: Fall, Spring, Summer.

**IDPT 8093 - IDPT Scholarly Activity (8 Credits)**

This course is designed to allow students to complete scholarly work not appropriately covered by other available courses (e.g. MSA work beyond IDPT 8091). 4 weeks. Cannot be taken after section 47. Prereq: Special permission and individual arrangements required in advance. Student must have a faculty/project mentor who will sign off on the project. Student must receive prior approval from Assoc. Dean for Student Affairs. Grading Basis: Medical School  
Repeatable. Max Credits: 24.  
Typically Offered: Fall, Spring, Summer.

**IDPT 8095 - Research Track Phase IV (1-8 Credits)**

Students complete requirements for Research Track which includes submission to a national scientific journal of a first author manuscript which meets mentor-standards as appropriate for submission. Students will present their work at the Capstone event. Prerequisite: Required if enrolled in Research Track. Instructor consent required. Grading Basis: Pass/Fail with IP  
Repeatable. Max Credits: 8.  
Typically Offered: Fall, Spring.

**IDPT 8500 - Independent study in Research or other degree (2-3 Credits)**

This elective allows students either enrolled in a joint degree program (such as MBA/MD or MBIOS/MD) or doing a research fellowship (such as Howard Hughes or Doris Duke) to remain as students and receive malpractice coverage while involved in maintaining clinical skills. Requisite: Consent form Associate Dean of Student Life, School of Medicine Required. Grading Basis: Pass/Fail with IP  
Repeatable. Max Credits: 7.  
Typically Offered: Fall, Spring, Summer.

**IDPT 8540 - DH-LIC Capstone Social Medicine (4 Credits)**

A 2 week elective available to alumni of the DH-LIC and required for students enrolled in the DH-LIC Longitudinal Scholarship in Social Medicine Elective. This elective provides in-depth content and expert speakers covering topics in social medicine, disparities, health care systems and public and population health. Grading Basis: Pass/Fail with IP  
Typically Offered: Spring.

**IDPT 8601 - Research Track, Research I (8 Credits)**

The first of two courses for Phase IV Research track medical students. Students are expected to spend full time working on their research project and towards the Track required goals of submitting an abstract and a first-author publication. Limited to and required for Phase IV (MS4) medical students who are in good standing in the Research Track. Course Director approval required. 4 weeks. Grading Basis: Medical School  
Typically Offered: Fall, Spring, Summer.

**IDPT 8602 - Research Track, Research II (8 Credits)**

The second of two courses for Phase IV Research Track medical students. Students are expected to spend full time working on their research project and towards the Track required goals of submitting an abstract and a first-author publication. Restrictions: Limited to and required for Phase IV (MS4) medical students who are in good standing in the Research Track. May be repeated once as an elective. Prereq: IDPT 8601. Course Director approval required. 4 weeks. Grading Basis: Medical School  
Repeatable. Max Credits: 8.  
Typically Offered: Fall, Spring, Summer.

**IDPT 8610 - Scholar's Year Research (2 Credits)**

This 3-semester longitudinal course is an adjunct to the scholar's year for the work in progress during scholar's year, and requires twice a semester check ins with the Office of Student Life and reflection on career trajectory. Courses to be taken between 3rd year clinical courses and 4th year electives. Requisite: Must have successfully completed all 3rd year courses to enroll. Grading Basis: Pass/Fail with IP  
Repeatable. Max Credits: 6.  
Typically Offered: Fall, Spring, Summer.

**IDPT 8640 - DHLIC Longitudinal Scholarship (4-8 Credits)**

A longitudinal elective available to alumni of the DH-LIC aimed at providing in-depth mentored project work and a longitudinal curriculum in social medicine and population health. The longitudinal course will count as a research elective. Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

**IDPT 8890 - Clinical Experience for CTSI PhD Students (1 Credit)**

Each student will identify a clinician mentor who will develop/direct clinical experience tailored to student's thesis research. It may include participation in relevant clinical conferences, a direct clinical experience, clinical research, and preparation of a clinical research protocol. Prereq: IDPT 7805 & 7646, EPID 6630, BIOS 6601 or equivalent. Restrictions: PhD Graduate Students. Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall, Spring, Summer.

## International Education-CSU (IEOO)

IEOO 6790 - Advanced International Development (3 Credits)  
In-depth interdisciplinary analysis of theoretical and practical issues in implementing economic and community-based international development programs.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Spring.

## Journalism and Tech Comm-CSU (JTCM)

JTCM 5010 - Process and Effects of Communication (4 Credits)  
Examination of communication theory including communicator credibility, messages, channels, audiences, and information, behavior, and attitude change. Prereq: JTCM 5000  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Fall.

JTCM 6140 - Public Communication Campaigns (3 Credits)  
Conceptual, methodological issues and decisions underpinning determination of communication campaign effects, planning, implementation, and evaluation.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Fall.

JTCM 6300 - Health Communication (3 Credits)  
Role of health communication in public health programs and campaigns.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Fall.

JTCM 6500 - Strategic Communication Management (3 Credits)  
Theoretical and practical management techniques for public relations campaigns including societal, ethical, and legal issues involved.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Spring.

JTCM 6600 - Communication and Innovation (3 Credits)  
Communication's role in technology transfer as related to nature, process, and effects of technology transfer, knowledge dissemination, and utilization.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Fall.

JTCM 6610 - Information Design (3 Credits)  
Theoretical and empirical review of creation, presentation, storage, and distribution of information.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Fall.

JTCM 6700 - Social Processes of Risk (3 Credits)  
Provides students with a broad entry to this sprawling and cross-disciplinary literature, from seminal work that served to coalesce study of risk perception and risk communication to the most current literature that is redefining this field and charting its future.  
Grading Basis: Letter Grade  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Spring.

JTCM 6950 - Independent Study: Communication (1-3 Credits)  
Independent study in Journalism and Technical Communication.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 3.  
A-PUBH1 Graduate students and public health certificate students only.  
Additional Information: Colorado State University.  
Typically Offered: Fall, Spring, Summer.

## Master of Science in Clinical Pharmacy (PRDM)

PRDM 7150 - Medical Terminology and Lab Interpretation (0.5 Credits)  
Medical Terminology and Lab Interpretation – This course provides a review of medical terminology and laboratory interpretation with an emphasis on US pharmacy and medical terms and abbreviations. Students will also review the top 100 medication prescribe in the United States.

Grading Basis: Letter Grade  
Repeatable. Max Credits: .5.  
Typically Offered: Fall, Spring, Summer.

PRDM 7323 - Pharmacotherapy – Critical Care (1 Credit)  
Pharmacotherapy – Critical Care – This course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, and professional skills development for critical care patients. Course may include case-based, team-based learning.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Typically Offered: Fall, Spring, Summer.

PRDM 7331 - Pharmacotherapy – Pediatrics (1 Credit)  
Pharmacotherapy – Pediatrics -Combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, and professional skills development for disorders and issues of pediatrics patients. Course may include case-based, team-based learning.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Typically Offered: Fall, Spring, Summer.

PRDM 7400 - Drug Info Fundamentals (1 Credit)  
Drug Information Fundamentals – The fundamentals of practice of drug information are introduced so students can retrieve, evaluate, and utilize professional and lay information in a critical manner that enhances their practice of pharmacy, all in the context of the history and contemporary pharmacy practice.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 1.  
Typically Offered: Fall, Spring, Summer.

**PRDM 7413 - Masters Drug Information Portfolio (0.5 Credits)**

Masters Drug Information Portfolio – This longitudinal portfolio is for CPM students to learn, build competence and gain experience in the application of acquired drug information knowledge. Required prerequisites: PRDM 7150, PRDM 7700 and PRDM 7400

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7440 - Evidence-Based Medicine & Literature Eval (3 Credits)**

Evidence-Based Medicine & Literature Evaluation – This course provides an introduction and step-wise approach to evidence-based medicine.

Knowledge gained from this course allows students to search for and understand published medical studies, research designs and statistical tests, and their application to clinical practice. Required prerequisites:

PRDM 7150, PRDM 7700, PRDM 7400, PRDM 7621, PRDM 7622, PRDM 7561.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**PRDM 7470 - U.S. Pharmacy Leadership & Management (2 Credits)**

US Pharmacy Leadership and Management – Provides students with an overview of fundamental principles of leadership. Attributes of effective leaders will be identified and discussed. An emphasis will be placed on identifying and cultivating personal leadership qualities to use throughout their pharmacy education and career.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**PRDM 7490 - Healthcare Informatics (1 Credit)**

Healthcare Informatics – This course strengthens the skills necessary to allow practicing pharmacists to provide accurate, unbiased, and relevant drug information.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7492 - Healthcare Informatics II (1 Credit)**

This course will focus on fundamentals of pharmacy informatics with an emphasis on data management, methods and medication-related applications. Prerequisite: PRDM 7150, PRDM 7490, PRDM 7700.

Students eligible to enroll: M.S. Clinical Pharmacy student.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7495 - Innovation Entrepreneurship (1 Credit)**

This goal of this course is to introduce the student to thinking differently. During the course, the learner will have the opportunity to gain an understanding and recognize their creative abilities, promote innovation in themselves and others, and demonstrate productive thinking. Upon completion the student should have a better understanding. Requisite: PRDM 7150, PRDM 7490, PRDM 7700. Students eligible to enroll: M.S. Clinical Pharmacy student.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7561 - Instructional Methods/Research (1.5 Credits)**

Instructional Methods/Research - This course is designed to advance the participant's presentation and teaching skills. It focuses on the development of essential components of formal presentations, including learning objectives, outlines, and delivery skills. Participants use a clinical question to achieve the course requirements. Required prerequisites: PRDM 7150, PRDM 7700, PRDM 7400, PRDM 7621 & PRDM 7622

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7601 - Public Health (1 Credit)**

Public Health – This course provides an overview of the US healthcare system with insight into global health issues, their key components and their functional relationships.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7602 - U.S. Based Health Economics (1 Credit)**

US Based Health Economics – This course covers economic evaluation techniques for pharmaceutical care, and how to use economic clinical and humanistic outcomes research to understand and assess health care interventions and health care systems.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7621 - Interprofessional Collaborative Practice (0.5 Credits)**

This course develops core competencies in teamwork & collaboration for incoming health professions students. Students will learn in IP teams coached by IP faculty, develop essential communication skills and processes for simultaneous and sequential teams, and provide feedback on individual and team performance to improve IP collaboration.

Notes: Eligible Students: - NTPD students. ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7622 - Interprof Healthcare Ethics & Health Equity (0.5 Credits)**

This course develops foundational knowledge and basic practical skills to identify, analyze, and resolve ethical and health equity issues in clinical practice. It integrates interprofessional collaboration and teamwork to teach students ethical theory and reasoning, professional ethics and approaches to healthcare decision-making. Notes: Eligible Students: - NTPD students. ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7700 - Clinical Skills Foundation (2 Credits)**

Clinical Skills Foundation – This course combines three components that provide foundation for ADMS courses: 1) orientation to patient assessment and skills development; 2) pharmacokinetics and pharmacodynamics; 3) advanced disease state management for fluids, electrolytes, and acid-base disorders.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**PRDM 7710 - Pharmacotherapy I – CV/Renal (2.5 Credits)**

Pharmacotherapy I – CV/Renal – This course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, and professional skills development for patients with common cardiovascular and renal disorders. Requisite: PRDM 7700

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7720 - Pharmacotherapy II – GI/Nutrition (2.5 Credits)**

Pharmacotherapy II – GI/Nutrition – Combines pathophysiology, advanced pharmacotherapeutics management, drug-specific pharmacokinetics, patient assessment, and professional skills development for patients with gastrointestinal and nutrition disorders.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7730 - Pharmacotherapy III Infectious Diseases (2 Credits)**

Pharmacotherapy III – Infectious Diseases – This course combines pathophysiology, advanced pharmacotherapeutics management, basic patient assessment, and professional skills development for patients with infectious diseases.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**PRDM 7741 - Pharmacotherapy IV-Oncology (2 Credits)**

Pharmacotherapy IV- Oncology – This course combines pathophysiology, advanced pharmacotherapeutics management, basic patient assessment, and professional skills development for oncology disorders. The course incorporates the principles of active learning using lecture and interactive formats.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**PRDM 7742 - Pharmacotherapy IV-II Bone & Connective Tissue (0.5 Credits)**

Pharmacotherapy IV-II – Bone and Connective Tissue Disorders – Combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, and professional skills development for patients with bone and connective tissue disorders.

Grading Basis: Letter Grade

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7745 - Palliative Care Pharmacotherapy (1 Credit)**

Palliative Care - This course is designed to introduce the student to palliative care and hospice pharmacy practice. Students will learn the pathophysiology, pharmacotherapeutics, patient assessment, and communication skills necessary to manage pain and other complex symptoms in patients living with serious illness. Requisite: PRDO/PRDM 7700, strongly suggest PRDO/PRDM 7741.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7750 - Pharmacotherapy V- Geriatrics/Neurology/Psychiatry (3 Credits)**

Pharmacotherapy V – Geriatrics, Neurology, Psychiatry – Combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, and professional skills development for geriatrics, psychiatric, and neurological disorders.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**PRDM 7760 - Pharmacotherapy VI- Pulm/Hematology/Gynecology/Endo (3 Credits)**

Pharmacotherapy VI – Pulmonary, Hematology, Gynecology, and Endocrine Disorders – This course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, and professional skills development for patients with endocrinology, hematology, pulmonology, and gynecology/urologic disorders.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**PRDM 7775 - Integrated Health and Medicine (1 Credit)**

Integrated Health and Medicine - This course is designed to develop a broad knowledge base in the field of Complementary and Alternative Medicine (CAM). Course will cover common vitamins and minerals, herbal products, and bio-identical hormones, touching on core CAM domains and discussions of regulatory issues.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7780 - Pharmacogenomics (1 Credit)**

Pharmacogenomics – This course provides students with an understanding of how genetic factors influence drug disposition, response, and adverse effects. Knowledge gained from this course enhances students' ability to apply generic information to pharmacy practice and select the most appropriate therapeutic intervention(s).

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDM 7800 - Clinical Reasoning & Decision Making (2 Credits)**

Clinical Reasoning & Decision Making – Designed for students to become familiar with the clinical decision making process by incorporating various skills including basic principles of drug information, clinical knowledge, systems-based or governmental policies, and payer status applying these skills to patient-specific problems. Required prerequisites:

PRDM 7150, PRDM 7700, PRDM 7400, PRDM 7621, PRDM 7622,

PRDM 7561, PRDM 7440.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**PRDM 7850 - Clinical Capstone (3.5 Credits)**

Clinical Capstone – This course is designed to be a capstone that integrates essential core pharmacy practice topics. The philosophy of this course is to facilitate student learning and hold students accountable for prior learning in an integrated manner using complex patient scenarios. Required prerequisites: PRDM 7150, PRDM 7700, PRDM 7400, PRDM 7621, PRDM 7622, PRDM 7561, PRDM 7440, PRDM 7800.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.5.

Typically Offered: Fall, Spring, Summer.



**PRDM 7851 - Clinical Capstone (3.5 Credits)**

Clinical Capstone -- This course is designed to be a capstone that integrates essential core pharmacy practice topics. The philosophy of this course is to facilitate student learning and hold students accountable for prior learning in an integrated manner using complex patient scenarios. Required prerequisites: PRDM 7150, PRDM 7700, PRDM 7400, PRDM 7621, PRDM 7622, PRDM 7561, PRDM 7440, PRDM 7800.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.5.

Typically Offered: Fall, Spring, Summer.

**PRDM 7913 - Professional Skills Portfolio (0.5 Credits)**

Professional Skills Portfolio -- Longitudinal portfolio. Students will document specific skills, assignments and other activities completed in their local workplace setting that demonstrate achievement of each of the above. Students will reflect on their learning, providing insight into successes and where further improvement is needed. Required prerequisites: PRDM 7150, PRDM 7700 and PRDM 7400

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDM 8000 - CPM Capstone Thesis (3 Credits)**

CPM Capstone Thesis-It is an experiential project to enhance patient-centered pharmacy care (i.e., clinical pharmacy) awareness, engagement, and practice or to address a problem in the student's real-world or work setting. This course will familiarize students with the various types of Capstone Thesis projects they can undertake. Required prerequisites: PRDM 7150, PRDM 7700, PRDM 7400, PRDM 7621, PRDM 7622, PRDM 7561, PRDM 7440, PRDM 7800, PRDM 7851.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PRDM 8001 - MS Clin Pharm Capstone Thesis Foundations (0.5 Credits)**

This course provides fundamentals in research and clinical pharmacy project types, allowing students to choose a topic, then plan and execute that project. The course requires successful live presentation of project proposal. It serves as a prerequisite to the longitudinal project course, to be completed throughout the program. Required pre- or co-requisites: PRDM 7400 Drug Information Fundamentals and PRDM 7440 Evidence-based medicine

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDM 8002 - MS Clin Pharm Capstone Thesis Project (2.5 Credits)**

This course requires completion of a clinical pharmacy thesis project, whose topic and plan must be approved in PRDM 8001. It is designed to provide patient-centered pharmacy care and is completed during the student's time in the MS Clin Pharmacy program. Successful completion includes a poster, live presentation and a manuscript. Required prerequisites: PRDM 8001 MS Thesis Project Foundations

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.5.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

**PRDM 8003 - MS in Clinical Pharmacy Internship (6 Credits)**

This course will involve 240 clock hours of applied learning in a mutually-agreed upon (between the student and SSPPS) professional site, such as a patient care or other clinical pharmacy related site. The course requires a significant paper reflecting on the learning experience and future application of it. Requisite: Students must independently secure proper professional licensure, such as intern pharmacist or pharmacist license, for the local area of the internship site.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

## Medicine (MEDS)

**MEDS 6050 - Mission Medical Clinic Colorado Springs (2 Credits)**

Learn about healthcare for vulnerable patients in Southern Colorado via volunteerism at Mission Medical Clinic, a "free clinic" in Colorado Springs. Students will serve as volunteer clinicians providing mentored primary care to adults lacking medical insurance.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 10.

Typically Offered: Fall, Spring, Summer.

**MEDS 6620 - Bioethics, Medicine & Health (2 Credits)**

The course explores key problems of bioethics in medicine & health.

Moral frameworks will be discussed and critiqued via an engaging, seminar-style format. The emphasis is on practical application to real-life cases via critical reading, writing, and discussion.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 6621 - Geriatric Medicine (2 Credits)**

Aging in America, exposure to geriatric health care ranging from prevention among healthy community dwelling elderly to hospice care for terminally ill in nursing homes. Course requirement: Students must contact the course coordinator two weeks prior to beginning elective.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**MEDS 6623 - Intro Biomedical Research (1-24 Credits)**

Independent study with a mentor of your choice. A short paper on a subject chosen by the student is usually required. Dr. Repine will meet with students interested in a career in academic medicine and/or research.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**MEDS 6625 - Integrative Medicine - Our Patients, Ourselves (2 Credits)**

Through expert guest presentations and class participation, you will become familiar with a wide variety of healing modalities that define Integrative Medicine. In the process, you will acquire the skills of wellness for both yourself and your patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 6626 - Molecular Biology Cancer (1 Credit)**

Provides an overview of molecular events that occur in the cell that relate to the origins of neoplasia. Provides students the ability to understand/interpret literature and an appreciation of how biology impinges on the practical treatment of cancer.

Grading Basis: Medical School

Typically Offered: Fall.



**MEDS 6629 - The Healer's Art (1 Credit)**

The Healer's Art is an innovative Discovery Model Curriculum providing clarification and understanding of our professional lives. We offer a safe learning environment for personal, in-depth exploration of the time honored values of service, healing relationship, compassionate care, and professional development.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 6632 - Literature, Art, and Medicine (1 Credit)**

We will explore the doctor-patient relationship as represented in literature, film, and visual arts. The course is based on intensive reading, group discussion, and reflective and critical writing.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MEDS 7005 - Palliative Care Third Year Selective (8 Credits)**

This is an introduction to hospice and palliative care. Students will explore the physical, social, psychological, and spiritual aspects of patient care for the terminally ill and learn how value-based goals of care are elicited from discussions and acute symptom control in the patient with serious illness.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MEDS 8001 - Medicine AI (8 Credits)**

4 wks. Max:18. This course can meet Sub-I qualifications. The sub-intern functions as an intern and is responsible for the admission, evaluation, and continuing care of patients under the supervision of a Resident and an Attending. Subinternships are offered at DHMC, P/SL, UCH, VAMC, and St. Joseph's Hospital..

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8002 - Hospital Medicine AI (8 Credits)**

Experience hospitalist medicine first hand by working one-on-one with an attending and developing a quality improvement initiative. You will also gain the skills to excel from the start of intern year by being the primary provider for your patients. This Sub-I course meets the CU SOM requirement for graduation.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8004 - Cardiology (8 Credits)**

4 wks. Designed to offer a broad general exposure to adult cardiology, including history, physical examination, and an introduction and review of standard noninvasive testing. Rotations will be at UCH, DVAMC and DHMC with assignments based on timing of request and availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8005 - Cardiac Diagnostic Skills (4 Credits)**

2 wks. Max:6. Course is at Exempla St. Joseph Hospital. Goals are to improve cardiac physical diagnosis skills, interpret EKG findings, recognize abnormal heart sounds and murmurs; and analyze cardiac chest x-ray findings. Includes didactic sessions and home study. Restrictions: Course may only be added during adrop/add time.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**MEDS 8006 - Allergy/Clin Immunology (4-8 Credits)**

4 wks. Max:1. Offered at UH and NJMC. Allergy and clinical immunology with direct patient contact in allergy and immunology clinics.

Opportunities to participate in inpatient consultations, observe clinical immunology laboratory techniques, and library research. Prereq: Course Director approval required to add course.

Grading Basis: Medical School

**MEDS 8007 - Clinical Renal (4-8 Credits)**

4 wks. Max:4. A four-week elective course in electrolyte, hypertensive, acute and chronic renal failure, glomerular (including diabetes) disorders, and hospital services. The students will see consults on all services, learn to maintain and analyze flow sheets, and review problems with residents and fellows.

Grading Basis: Medical School

**MEDS 8009 - Clin Infectious Diseases (4-8 Credits)**

2-4 wks. Max:4. UCH and DHMC. Hospital assigned. Hospitalized patients with a variety of infectious diseases are available for study. Diagnosis, pathophysiology, immunology, epidemiology, and management, including use of anti-microbial agents are emphasized. Students attend and participate in ward rounds and conferences. Prereq: Completion of core requirements for 3rd year students. Restrictions: Accept 4th year students only. Note: a 2 week elective maybe available. Student must make arrangements with Student Affairs and be pre-approved by Program Director before being confirmed to take elective course.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

**MEDS 8010 - Clin Gastroenterology (4-8 Credits)**

4-12 wks. Max:2. Students will participate in work up of both hospitalized and ambulatory patients with gastrointestinal (GI) illnesses. GI pathophysiology will be emphasized. Students attend weekly conferences in clinical gastroenterology, radiology and pathology. They are invited to observe procedures. Hospital is assigned.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**MEDS 8011 - Pulmonary Medicine (8 Credits)**

4 wks. Max: 2. UCH, DHMC, and DVAMC. This elective offers broad experience in pulmonary and critical care medicine. Students participate in consultations, attend conferences and clinics. A wide variety of pulmonary and critical care cases are seen.

Grading Basis: Medical School

**MEDS 8012 - Clinical Rheumatology (8 Credits)**

4 wks. Max:1. Students will learn how to recognize, diagnose, and treat common rheumatic disorders. Students will attend all formal teaching conferences in the Division of Rheumatology and attend 6 or more outpatient clinics each week. Prereq: Completion of all third year clerkships.

Grading Basis: Medical School

**MEDS 8013 - Endocrinology (4-8 Credits)**

2-4 wks. Max:2. Introduction to evaluation and management of endocrine disorders via outpatient clinics and inpatient consults at VAMC, DHMC, and UCH. Endocrine-focused history-taking and physical examination with a complete problem-oriented approach to patient care. Multiple conferences and close interaction with fellows and attendings.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**MEDS 8014 - Hematology / Oncology (4-8 Credits)**

2-4 wks. Max:1. Students are exposed to a wide range of patients seen in consultation for hematologic and oncologic problems. Students may also elect to attend the numerous subspecialty outpatient clinics for patients with various malignancies. Prereq: MED, OBGYN, PED, PSCH 7000.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**MEDS 8015 - Care for the Under-served (8 Credits)**

This elective is for students interested in Internal Medicine and care for under-served populations. Students will rotate in a clinic at Denver Health, the DAWN clinic (student-run clinic for under-served patients), and complete a healthcare disparities project.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MEDS 8017 - Hospice/Palliative Care (4-8 Credits)**

2-4 wks. Max:1. This is an introduction to hospice and palliative care. You will become a member of the interdisciplinary team at the Hospice of Saint John, focusing on the physical, social,

psychological, and spiritual aspects of patient care for the terminally ill.

Requirement: Contact Dr. Youngwerth one week prior to starting via Email Jean.Youngwerth@ucdenver.edu.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**MEDS 8023 - Medicine Consult (4-8 Credits)**

Medicine Consult is for students interested in learning about medical issues of surgical patients and performing general medical consultations for non-medical services. This elective will be useful to the student interested in a career in hospital medicine or surgical subspecialties.

Offered for 2 or 4 weeks. Prereq: 3rd year medicine

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8025 - Medical Oncology (8-12 Credits)**

4-6 wks. Max:2. Students will learn the basic aspects of medical oncology by evaluation of patients in the general oncology and subspecialty oncology clinics. They will attend the weekly multi-disciplinary tumor conferences and fellow didactic conferences.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**MEDS 8029 - Applied Clin Pharmacology (8 Credits)**

4 wks. Min:20/Max:120. This course provides fourth year medical students with a practical approach to the pharmacologic treatment of common clinical conditions. There will be three 1-hour lectures each day, ten additional hours of independent study per week, and a final examination. Restriction: Course offered section 37 only.

Grading Basis: Medical School

**MEDS 8032 - Corrections Health Care (4 Credits)**

2 wks. Max:1. Provide primary care to inmates in corrections facilities. Experiences include manipulative or drug-seeking patients, the interface between health care and the legal system, and issues in correctional health care (i.e., HIV, TB). Prereq: One month notice needed to schedule this elective.

Grading Basis: Medical School

**MEDS 8034 - Critical Care St Joe's AI (8 Credits)**

4 wks. Max:2. This course can meet Sub-I qualifications. Student functions as an intern-equivalent and admits patients during overnight call every third day. Student will attend daily ICU interdisciplinary rounds and enhance skills in reporting, interpreting clinical information, communication, and patient management plans. Student will present an EMB-research clinical question.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8037 - Medical ICU - UCH (8 Credits)**

This rotation will provide training in the care of critically ill ICU patients. Emphasized skills will include management of respiratory failure, hemodynamic instability, severe electrolyte abnormalities, gastrointestinal emergencies and common ICU procedures. Prereq: Sub I in Medicine or Surgery.

Grading Basis: Medical School

**MEDS 8038 - CAM Wellness Elective (4-8 Credits)**

2 or 4 wks. Min:2/Max:4. In-depth exploration of CAM therapies and personal wellness will be facilitated through didactic sessions, field trips, online learning, reflection, and self-directed project. Students will work collaboratively in groups and the time will be tailored to individual goals.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**MEDS 8039 - AIDS and American Culture (4 Credits)**

This course approaches HIV/AIDS as a biomedical, social, political and creative phenomenon. We will investigate the discourse and images of AIDS in journalistic writing, autobiography, fiction, poetry, film, television and photography. 2 wks. Restriction: Offered Section 49 only.

Grading Basis: Medical School

Typically Offered: Spring.

**MEDS 8040 - Film and Mental Illness (4 Credits)**

There is a well-documented relationship between movies and psychiatry. How accurate are film depictions of psychiatric conditions? How has cinematic representations shaped our personal responses, cultural beliefs, social policies regarding the mentally ill and those who care for them? 2 wks. Restrictions: Offered Section 43 only.

Grading Basis: Medical School

Typically Offered: Spring.

**MEDS 8050 - Community Hospital Medicine-Colorado Springs (4-8 Credits)**

Students will work with Hosp Med faculty seeing patients on the inpatient medical wards at a busy, large community hospital. Students will be exposed to a wide range of acute medical issues in patients presenting to the hospital. Course offered all semesters except May and December.

Instructor Consent Required

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8051 - Gastroenterology - Colorado Springs (4-8 Credits)**

Students will work with Gastroenterology clinical faculty seeing patients in the outpatient, inpatient, and endoscopy community settings. Student will be exposed to the full range of adult gastroenterologic disease. The rotation is designed for students to experience the practice and life of a community-based Gastroenterologist. Instructor Consent Required.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**MEDS 8052 - Medical Critical Care - CSB (8 Credits)**

Students will work with a critical care physician and critical care team evaluating critically ill patients in consultation on the hospital wards and providing primary care to the patients in the Intensive Care Units at a large busy community health system.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**MEDS 8053 - Adult Cardiology - CSB (4-8 Credits)**

This elective provides an opportunity to learn about the history, physical exam, and diagnostic cardiac procedures of adults with heart disease by working directly with attending cardiologists in the outpatient clinic, rounding and performing consults in the hospital, and performing and interpreting cardiac testing.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MEDS 8100 - MEDS Elective Away (4-8 Credits)**

This Medicine elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**MEDS 8600 - Research in Medicine (4-24 Credits)**

2-12 wks. Course provides an opportunity for seniors to participate in research at the clinical or basic science level. The student must consult with Dr. Horwitz or Dr. Aagaard about the varieties of options available. Course is graded on a pass/fail basis only. Restrictions: Not available sections 49-50.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**MEDS 8630 - MEDS Research Away (8-16 Credits)**

This Medicine research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2, 4, 6, or 8 weeks. This course is graded on a pass/fail basis only.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Microbiol, Immunology, Pathology- CSU (MIPO)

**MIPO 5550 - Principles and Mechanisms of Disease (3 Credits)**

Principles of disease processes; emphasis on reactivity of the diseased cell, tissue, organ or organism. Prereq: BMS 300, coursework in histology, physiology and anatomy. Permission of instructor needed if prerequisites not met.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

## Microbiology (MICB)

**MICB 7620 - Advanced Genome Analysis (2 Credits)**

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, microbiome analysis, functional genomics, ethics.

Crosslisted Course: CPBS 7620, STBB 7620, and HMGP 7620

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7621 - Genome Analysis Workshop (3 Credits)**

The Genome Analysis Workshop is a hands-on tutorial of skills needed to process large genomics data sets and visualize their results. The class is taught from the standpoint of biologist with practical goals (e.g. to interpret the results of a sequencing-based experiment and gain biologically meaningful insight).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7628 - Viral Pathogenesis (2 Credits)**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

**MICB 7650 - Research in Microbiology (1-10 Credits)**

Research work in microbiology. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**MICB 7701 - Molecular Virology and Pathogenesis (3 Credits)**

Topics in this course include viral structure and genome organization, replication and expression of viral genomes, mechanism of action of tumor viruses, molecular aspects of virus-host cell interactions, animal models of infectious diseases and pathogenesis of human viruses. Prereq: MICB 7706, MICB 7705 are desirable but not required. Restriction: Permission of Instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7703 - Molecular Mechanisms of Bacterial Disease (3 Credits)**

The course focuses on molecular processes that bacteria utilize to cause disease in humans. The course content will use specific examples from pathogenic bacteria to illustrate common virulence mechanisms utilized to initiate, maintain and survive interactions with host cells. Prereq: Recommended Fundamentals of Microbiology Restrictions: Permission of the instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7704 - Host Response to Infectious Disease (1 Credit)**

This interactive graduate course, which provides an overview and specific examples of the host response to infectious disease. Current research and future directions in the field are discussed. Students are assessed via presentations, participation and an exam. Prerequisite: Biomedical Core Courses

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 7705 - Medical Microbiology (4 Credits)**

The course will focus on Microbiology, Infectious Diseases. Course content will focus on: pathogenic bacteria, viruses, fungi, parasites; emphasis on microbial virulence determinants, host-pathogen interactions emphasizing host immune responses, signs, symptoms of disease presentation, epidemiology, and diagnosis of infectious diseases. Prereq: Recommended Fundamentals of Microbiology. Restriction: Permission of Instructor. Cross listed: IDPT 6004.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MICB 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in microbiology. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Modern Human Anatomy (ANAT)

**ANAT 6111 - Human Gross Anatomy (8 Credits)**

The Human Gross Anatomy course examines the form and function of the human body at a macroscopic level. Systems-based and regional anatomy lectures are complemented by full-body cadaver dissection. Medical imaging labs provide the opportunity to learn ultrasound skills. Requirements: Must be a degree-seeking student in MS Modern Human Anatomy program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**ANAT 6205 - Imaging and Modeling (4 Credits)**

This course covers major medical and scientific imaging modalities with an emphasis on 3D scientific and medical visualization. Students will also receive instruction in advanced digital image processing and 3D modeling using industry-standard software such as MATLAB and Maya. Prerequisite: Only ANAT degree-seeking students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6208 - Foundations in 3D Modeling for Anatomical Sciences (1 Credit)**

An introduction to the applications and techniques necessary for 3D scanning, modeling, and printing. This lab-based course will provide students with hands-on experience on acquiring and processing surface scan data along with strategies for printing and finishing objects using fused-deposition modeling and stereo lithography. Pre-requisite: ANAT 6205

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**ANAT 6210 - Autodesk Maya for Anatomical Science (2 Credits)**

Autodesk Maya for Anatomical Sciences teaches students to create professional animations illustrating concepts inherent in the study of medical science using Autodesk Maya. Pre-requisite: ANAT 6208.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**ANAT 6220 - Unreal Engine for the Anatomical Sciences (2 Credits)**

This course builds upon the foundational 3D modeling skills learned in ANAT 6260 and provides students with the practical experience, inspiration, and confidence to incorporate the Unreal Engine into their capstone. Students will deploy an app built with Unreal Engine. Pre-requisite: ANAT 6208 Prerequisite; ANAT-MS student or instructor permission.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**ANAT 6310 - Neuroanatomy (4 Credits)**

Structure & Function in the Human Nervous System. Basic neuroanatomy & neural systems with workshop focus employing facilitated discussions & problem-oriented cases. Laboratory sessions will employ brain specimens, models & image sets. Team-based projects are in-depth exploration of topics with development of collaborative presentations.

Requisite: Restricted to ANAT students only.

Grading Basis: Letter Grade

Typically Offered: Fall.

**ANAT 6321 - Human Histology (4 Credits)**

Histology is the study of the tissues. By exploring the human structure, function and organization at the histological level, students will gain important pattern recognition skills to integrate microscopic knowledge with macroscopic gross anatomy and other foundational anatomical sciences. (Will replace ANAT 6320) Prereq: Restricted to ANAT students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6330 - Human Embryology (3 Credits)**

This graduate level, introductory human embryology course will emphasize developmental aspects of adult anatomy and congenital malformations. Educational value of three-or-four-dimensional models and other ancillary learning resources for human embryology will also be explored. Requisite: Restricted to ANAT students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**ANAT 6412 - Foundations of Teaching (1 Credit)**

This course will provide students with training, practice, and constructive feedback in effective teaching skills in order to be successful in the biomedical professions. Topics include learning objectives, the neurobiology of learning, assessments, and effective communication within and outside the classroom.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6490 - Advanced Teaching in Anatomical Sciences (3 Credits)**

This course offers a hands-on, supervised experience as an anatomical sciences educator. Readings and discussions will enhance your understanding of educational pedagogy. You will apply these skills as you develop and deliver lecture and lab content in a classroom setting. Instructor consent required.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.



**ANAT 6600 - Experimental Design and Research Methods (1 Credit)**

In this course, students will foster and apply strategies that enable critical evaluation of any published research (including basic, clinical, and educational), as well as develop the skills necessary to conduct and appropriately analyze their own research data.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**ANAT 6750 - Special Topics: Modern Human Anatomy (1-6 Credits)**

This course is offered in a variety of technical and thematic areas in modern human anatomy. The specific topics vary from year to year. Note: This course includes lectures, discussions and workshops.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6840 - Independent Study (1-6 Credits)**

This course enables the student to pursue an investigation in a modern human anatomical field of choice toward completion of a capstone project with relatively minor supervision from faculty advisors.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6910 - Teaching Practicum (1-4 Credits)**

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Prereq.: ANAT 6412. Course restricted to ANAT majors.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6911 - Advanced Teaching Practicum (1-4 Credits)**

Hands-on teaching course in which students apply pedagogical theories to practice in a professional program as a teaching assistant, lecturer or other instructional position. Pre-requisite: ANAT degree-seeking student; ANAT 6412

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**ANAT 6931 - MSMHA Internship (1-6 Credits)**

The internship provides hands-on learning opportunities and practical experience for graduate students in institutions related to anatomical sciences, imaging, technology/biotechnology, innovation, and entrepreneurship. Restricted to ANAT students only

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**ANAT 6950 - MSMHA Capstone Project (1-12 Credits)**

The Capstone project is a scholarly and/or research-based pursuit of knowledge and content development in the area of anatomical sciences, modern imaging and modeling technologies, and educational science completed as part of the MS in Modern Human Anatomy. Prerequisite: Must be ANAT degree-seeking student.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Molecular Biology (MOLB)

**MOLB 7650 - Research in Molecular Biology (1-10 Credits)**

Research work in molecular biology. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**MOLB 7661 - Molecular Biology Seminar (1 Credit)**

Seminar series provides a forum for the presentation of scientific experiments and information in molecular biology by faculty, postdoctoral fellows, graduate students and invited outside guest speakers.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**MOLB 7800 - Advanced Topics in Molecular Biology (3-4 Credits)**

Course instructs graduate students how to critically evaluate scientific literature. Course in 4 blocks; topics include nucleic acid, chromatin structure, DNA replication, RNA transcription, RNA processing, cell cycle control, genetics of model organisms. Papers chosen by instructors, presentations by students. Prereq: IDPT 7811, 7812, 7813, 7814, 7815. Restriction: By Permission of instructor. Course offered in 4 blocks of 1 hour of credit each.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**MOLB 7801 - Rigor and Reproducibility in Biomedical Research (1 Credit)**

Course will integrate the concepts of rigor, repeatability and reproducibility by combining both wet and dry lab components focused on teaching these concepts and laboratory skills. We will seek to make these concepts routine considerations during the design and execution of any type of experiment. Instructor consent required.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**MOLB 7900 - Practical Computational Biology for Biologists: Python (2 Credits)**

Comp. biology class aimed at biology PhD students. Topics covered include: basic practices for coding in python; analysis of standard high-throughput genomic data to study the regulation of gene expression; intro to modeling gene expression; data visualization; communicating computational analysis/results. 3 wks. lecture, lab & recitation

Grading Basis: Letter Grade

Typically Offered: Spring.



**MOLB 7910 - Practical Computational Biology for Biologists: R (2 Credits)**

Comp. biology class aimed at biology PhD students. Topics covered include: basic practices for coding in R; analysis of standard high-throughput genomic data to study the regulation of gene expression; intro to modeling gene expression; data visualization; communicating computational analysis/results. 3 wks. lecture, lab & recitation  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**MOLB 7950 - Informatics and Statistics for Molecular Biology (4 Credits)**

This course covers the design and analysis of common molecular biology experiments with thorough coverage of statistical and informatic approaches to data analysis. The course begins with a "boot camp" that covers use of shell programming, R/R Studio, and Python scripting in bioinformatics. Pre-Req: MOLB-PhD or CSDV-PhD students only  
Grading Basis: Letter Grade  
A-GRAD Restricted to graduate students only.  
Typically Offered: Fall.

**MOLB 8990 - Doctoral Thesis in Molecular Biology (1-10 Credits)**

Doctoral thesis work in molecular biology. Prereq: Consent of Instructor.  
Grading Basis: Letter Grade with IP  
Repeatable. Max Credits: 99.  
A-GRAD Restricted to graduate students only.  
Additional Information: Report as Full Time.  
Typically Offered: Fall, Spring, Summer.

## MPAS - Phys Asst-Pediatrics (MPAS)

**MPAS 5000 - Summer Immersion (10 Credits)**

This first year course is designed to introduce learners to the Anschutz Medical Campus, fundamentals of learning strategies, PA professional roles, wellness and resilience and the clinical presentation curriculum.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Summer.

**MPAS 5001 - Hematology, Infection, Inflammation and Malignancy I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with hematologic, infection, inflammation and malignancy conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall.

**MPAS 5002 - Gastrointestinal, Genitourinary and Renal I (5 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with gastrointestinal, genitourinary and renal conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall.

**MPAS 5003 - Cardiovascular and Pulmonary I (5 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with cardiovascular and pulmonary conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall.

**MPAS 5004 - Dermatology and HEENT I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with dermatologic, head, ears, eyes, nose, and throat conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Spring.

**MPAS 5005 - Musculoskeletal and Neurology I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with musculoskeletal and neurologic conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Spring.

**MPAS 5006 - Endocrinology and Reproduction I (4 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with endocrine and reproductive conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Spring.

**MPAS 5007 - Psychiatry I (3 Credits)**

Learners will be immersed in a first-year integrated learning environment covering both the basic sciences and clinical medicine necessary for a primary care provider to care for patients presenting with psychiatric conditions.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Spring.

**MPAS 5020 - Clinical Skills I (3 Credits)**

Learners will be engaged in a first-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall.

**MPAS 5021 - Clinical Skills II (3 Credits)**

Learners will be engaged in a first-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation. This is a continuation of MPAS 5020.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Spring.

**MPAS 5030 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a first-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5031 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a first-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5050 - Clinical Experiences I (4 Credits)**

Learners will be engaged in a preparatory course that provides a fundamental orientation to the clinical environment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5051 - Community Clinic I (2 Credits)**

Clinical experience designed to give the student an introduction to ambulatory medicine and an understanding of pediatric and family practice medicine.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5911 - Pediatric Critical and Acute Care --1st year (2 Credits)**

Clinical experience designed to give the student an introduction to pediatric critical and acute care and pediatric inpatient medicine. Restricted to CHA/PA students. Students must complete application process and be accepted before enrollment. Pre-requisite: Students must complete application process and be accepted before enrollment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5944 - Care of Hospitalized Adults - 1st Year (2 Credits)**

Clinical experience designed to give the student an introduction to hospitalized adult inpatient medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 5951 - CHA/PA Independent Study I - 1st year (1 Credit)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 16 hours during the semester they are enrolled. Restricted to CHA/PA students:

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 5952 - CHA/PA Independent Study II - 1st Year (2 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 32 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 5953 - CHA/PA Independent Study III - 1st Year (3 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 48 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 5983 - Global Health Track Elective I - 1st Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5984 - Global Health Track Elective II - 1st Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 5985 - Rural Health Track Elective I - 1st Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 5986 - Rural Health Track Elective II - 1st year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 6001 - Hematology, Infection, Inflammation and Malignancy II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with hematologic, infection, inflammation and malignancy conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6002 - Gastrointestinal, Genitourinary, and Renal II (5 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with gastrointestinal, genitourinary and renal conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6003 - Cardiovascular and Pulmonary II (5 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with cardiovascular and pulmonary conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6004 - Dermatology and HEENT II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with dermatologic, head, ears, eyes, nose and throat conditions. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6005 - Musculoskeletal and Neurology II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for presenting with musculoskeletal and neurologic conditions. Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6006 - Endocrinology and Reproduction II (4 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for presenting with endocrine and reproductive conditions. Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6007 - Psychiatry II (3 Credits)**

Learners will be immersed in a second-year integrated learning environment applying advanced principles of clinical medicine necessary for a primary care provider to care for patients presenting with psychiatric and behavioral health conditions. Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6020 - Clinical Skills III (3 Credits)**

Learners will be engaged in a second-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6021 - Clinical Skills IV (3 Credits)**

Learners will be engaged in a second-year longitudinal learning experience to facilitate the development of various clinical skills through discussion and simulation. This is a continuation of MPAS 6020.

Requisite: Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6030 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a second-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**MPAS 6031 - Foundations in Prevention, Advocacy and Prof Practice (2 Credits)**

Learners will be engaged in a second-year longitudinal learning experience dedicated to role development of a practitioner who cares for patients across the lifespan including professionalism, advocacy, preventative medicine and patient wellness.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**MPAS 6051 - Community Clinic I (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6052 - Community Clinic II (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6053 - Community Clinic III (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6054 - Community Clinic IV (2 Credits)**

Students will learn clinical skills in a variety of settings. Skills will include history taking, physical diagnosis, assessment and patient management under the supervision of community clinical preceptors. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6612 - Pediatric Critical and Acute Care —2nd year (2 Credits)**

Students will develop assessment and patient management skills in care of pediatric patients in critical and acute care and inpatient settings.

Restricted to CHA/PA students. Students must complete application process and be accepted before enrollment.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring.

**MPAS 6640 - Emergency Medicine Preceptorship (2 Credits)**

Students will develop assessment and patient management skills in care of patients in emergency medicine settings. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6644 - Care of Hospitalized Adults - 2nd Year (2 Credits)**

Clinical experience designed to give the student an introduction to hospitalized adult inpatient medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6651 - CHA/PA Independent Study I - 2nd Year (1 Credit)**

This course is offered to those students that are pursuing an independent course of study for 16 hours during the semester they are enrolled.

Restrictions: Restricted to CHA/PA students; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6652 - CHA/PA Independent Study II - 2nd Year (2 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 32 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6653 - CHA/PA Independent Study III - 2nd Year (3 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 48 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6670 - Women's Health Preceptorship (2 Credits)**

Students will develop assessment and patient management skills in women's health under the supervision of community clinical preceptors. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6671 - Guatemala Clinical Immersion Experience I (2 Credits)**

Two-week Spanish language immersion experience followed by a two-week primary care experience in the country of Guatemala. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

**MPAS 6672 - Guatemala Immersion I for Global Health Track (2 Credits)**

Two-week Spanish language immersion experience followed by a two-week clinic experience in the country of Guatemala. for fulfillment of Global Health Track requirements. Registration restricted to CHA/PA students only

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Summer.

**MPAS 6673 - Global Health Track Elective 1 - 2nd Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 6675 - Rural Health Track Elective I - 2nd Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 6676 - Rural Health Track Elective II - 2nd Year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 6677 - Urban Underserved Health Track Elective I - 2nd year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 6678 - Urban Underserved Health Track Elective II - 2nd year (1 Credit)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Spring.

**MPAS 6680 - Track Elective Experience I— 2 Weeks (2 Credits)**

2 week experiential learning opportunity associated with interprofessional track area of interest. Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty. Prerequisite: Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Summer.

**MPAS 6688 - Rural Track Immersion Experience (0 Credits)**

2 week experiential learning opportunity associated with interprofessional rural track. Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty. Prerequisites: Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Summer.

**MPAS 6689 - Track Elective Experience II— 4 Weeks (3 Credits)**

4 week experiential learning opportunity associated with interprofessional track area of interest. Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty. Prerequisites: Restricted to CHA/PA Students in authorized track. Permission must be given from the CHA/PA program Associate Director of Curriculum and Course Directors from the SOM Faculty.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Summer.

**MPAS 6699 - 2nd Year Clinical Experience Elective (2 Credits)**

An elective clinical experience for 2nd year Physician Assistant students.  
Grading Basis: Pass/Fail with IP  
Typically Offered: Fall, Spring, Summer.

**MPAS 6905 - MPAS 6905 - Surgery (4 Credits)**

Students will learn clinical skills for pre-operative, intra-operative and post-operative surgical medicine. This will include history taking, physical diagnosis, assessment and patient management. Students will observe or participate in surgical procedures under the supervision of community clinical preceptors.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6913 - Pediatric Critical and Acute Care—3rd year (4 Credits)**

This course involves active participation as a member of the critical and acute care or inpatient team in a pediatric teaching hospital. Restricted to CHA/PA students. Students must complete application process and be accepted before enrollment.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6920 - Neonatology (4 Credits)**

This course involves active participation in the care of neonates in a teaching hospital. Attendance at morning rounds, making case presentations and participating in the night and weekend call schedule are required. Students are encouraged to attend deliveries and perform circumcisions and other procedures with appropriate supervision. Restrictions: Restricted to CHA/PA students.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6930 - Primary Care I (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.  
Grading Basis: Pass/Fail with IP  
Repeatable. Max Credits: 43.  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6932 - Academic Inpatient Pediatric Medicine (4 Credits)**

This course involves active participation as a member of the housestaff pediatric inpatient team in a teaching hospital. Attendance at morning rounds, making case presentations and participating in the night and weekend call schedule are required. Restrictions: Restricted to CHA/PA students.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6936 - Pediatric Elective II - Four Week Rotation (Sec I, II, III, IV) (4 Credits)**

This clinical experience involves active participation in a specialty area of pediatric medicine for 4 weeks. Restrictions: Restricted to CHA/PA students.  
Grading Basis: Pass/Fail with IP  
Repeatable. Max Credits: 43.  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6938 - Adolescent Medicine (4 Credits)**

This course involves active participation in the care of patients in a clinical setting specializing in adolescent medicine, with an emphasis on the medical, psychosocial, developmental, educational and sexual issues that are unique to adolescents. Restrictions: Restricted to CHA/PA students.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.

**MPAS 6940 - Primary Care II (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.  
Grading Basis: Pass/Fail with IP  
A- MPAS Majors Only  
Typically Offered: Fall, Spring, Summer.



**MPAS 6942 - Inpatient Adult Medicine (4 Credits)**

This course involves active participation as a member of the house-staff inpatient team in a teaching hospital. Attendance at morning rounds, making case presentations and participating in the night and weekend call schedule are required. Restrictions: Restricted to CHA/PA Students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6944 - Care of Hospitalized Adults (4 Credits)**

Clinical experience designed to give the student an introduction to hospitalized adult inpatient medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6947 - Primary Care III (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6948 - Emergency Medicine (4 Credits)**

The course involves active participation in an emergency department or urgent care practice. Attendance at meetings, conferences, and participating in the night and weekend call schedule are required.

Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6952 - Rural Track Family Medicine (Sec I, II, III) (4 Credits)**

This block is comprised of three sections which must be completed in sequence in a single family medicine practice located in rural Colorado. The sequence involves participation in the care of patients in a family medicine setting, including health maintenance, diagnosis and treatment, patient education and follow-up for patients of all ages. Restrictions:

Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6970 - Adult Elective II - 4-week Rotation (Sec I, II, III, IV) (4 Credits)**

This clinical experience involves active participation in a specialty area of adult medicine for 4 weeks. Restrictions: Course restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6971 - Guatemala Clinical Immersion Experience II (4 Credits)**

Four week clinic experience in the country of Guatemala. Requisite:

Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6972 - Guatemala Immersion II for Global Health Track (4 Credits)**

Four-week rotation in the country of Guatemala in fulfillment of Global Health Track Requirement

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6974 - Primary Care IV (4 Credits)**

The course involves active participation in an ambulatory primary care practice with exposure to patients and caregivers across the lifespan, including pediatric, adolescent, women of child-bearing age, adult and geriatric patients. The student will have exposure to patients requiring acute, chronic, emergent and preventative care.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6975 - Behavioral & Mental Health (4 Credits)**

Course involves participation in the care of patients in a behavioral or mental health setting. Prerequisite: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring.

**MPAS 6978 - Clinical Connections I (1 Credit)**

This course involves clinical preparation modules, courses, workshops and practice activities.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6979 - Clinical Connections II (1 Credit)**

This course is a continuation of MPAS 6978.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**MPAS 6980 - Third Year Clinical Seminar (2 Credits)**

Third year clinical affords students the opportunity to present a patient encounter using multimedia technology and evidence-based research. This forum will encourage discussion of a vast array of medical conditions. Restrictions: Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6983 - Global Health Track Elective I - 3rd Year (4 Credits)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6985 - Global Health & Disasters (2 Credits)**

This course prepares its participants for international experiences and future global health work. This is an interactive training course which incorporates readings, lectures, small group problem based learning exercises, technical skill sessions and a disaster simulation exercise. Requisites: Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall.

**MPAS 6987 - Urban Underserved Health Track Elective - 3rd year (4 Credits)**

Registration is restricted to those students enrolled in authorized Track. Permission must be given from the CHA/PA Program Associate Director of Curriculum and Course Directors from the SOM Faculty. Restrictions: Restricted to CHA/PA Students enrolled in Track; Must receive approval from Associate Director of Curriculum.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6991 - CHA/PA Independent Study I - 3rd year (1 Credit)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 16 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6992 - CHA/PA Independent Study II - 3rd Year (2 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 32 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

**MPAS 6993 - CHA/PA Independent Study III - 3rd Year (3 Credits)**

Approval is required by the Associate Director of Curriculum. This course is offered to those students that are pursuing an independent course of study for 48 hours during the semester they are enrolled. Restricted to CHA/PA students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 3.

A- MPAS Majors Only

Typically Offered: Fall, Spring, Summer.

## Natural Resources Recreation & Tourism (NRRT)

**NRRT 6650 - Survey Research and Analysis (3 Credits)**

Survey research, design and analysis in human dimensions of natural resources.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

## Neurology (NEUR)

**NEUR 8000 - Advanced Neurology (4-8 Credits)**

This elective offers students further clinical experience with patients who have neurologic disorders. A program is prepared at one of three teaching institutions (University of Colorado Hospital, Denver Veterans Affairs Medical Center, or Denver Health Medical Center) for this rotation. 2 or 4 wks. Max: 3. Two week rotation allowed only for special circumstances and with course director approval one month prior to beginning of course.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**NEUR 8100 - NEUR Elective Away (4-8 Credits)**

This Neurology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**NEUR 8600 - Research in Neurology (4-24 Credits)**

2-12 wks. For further course information, contact the Chairman, Donald Gilden, M.D., 303-724-4326. Prereq: Offered with Chairman's approval only. The student must receive approval from the Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

## Neuroscience (NRSC)

**NRSC 7501 - Introduction to Neuroscience (1 Credit)**

Introduction to study of the nervous system from the level of the brain to an understanding of how neurons are specialized for communication and information processing. This course is a prerequisite for NRSC 7600 series courses.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**NRSC 7600 - Cellular & Molecular Biology (3 Credits)**

A comprehensive, in-depth, discussion-based course intended for candidates for the Ph.D. in Neuroscience. Topics include ion channel structure and function, ionic basis of the resting and action potential, and the biochemistry and physiology of direct and synaptic transmission.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**NRSC 7610 - Fundamentals of Neurobiology (3 Credits)**

This course will provide basic knowledge on the structure and function of the nervous system. The lectures will be supplemented by discussion of primary research literature in neurobiology. Prereq: NRSC 7600 or equivalent at the discretion of the instructors.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**NRSC 7612 - Nervous System Modeling with NEURON (1 Credit)**

The objective of this course is to introduce students to biophysically accurate modeling of single neurons and neuronal networks with NEURON simulation environment. Students will implement NEURON in a project of their choice, possibly related to their primary 'wet' research.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7614 - Biological Basis of Psychiatric & Neurological Disorders (2 Credits)**

This elective, for basic sciences graduate students and medical students, provides a survey of current clinical and molecular aspects of human neuropsychiatric disorders. Both movement disorders and DSMIV diagnoses will be covered. Contact Course Director for a list of topics.

Prereq: IDPT 7812 or BMGN 5000/CSBI 5001.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7615 - Developmental Neurobiology (3 Credits)**

This course will cover fundamental principles regarding development of the nervous system. The format of the course will consist of lecture plus reading of primary literature. Prereq: IDPT 5004, NRSC 7600 & NRSC 7610.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**NRSC 7616 - Introduction to Biomedical Photonics (3 Credits)**

The course introduces several principles of applying optical techniques to biomedical applications. Current development of biophotonic research, such as microscopy, optical coherence tomography, optical spectroscopic techniques in tissues, will be discussed. Prereq: EE 5802 Optical Engineering. Crosslisted: Electrical Engineering EE 5804.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7617 - The Biophysics of Ion Channels (1 Credit)**

Examination of the mechanisms of ion channel gating. Covers basic of bioelectricity, kinetic analysis of channel gating, microscopic and macroscopic gating, thermodynamics, ion channel structure, ion channel pharmacology, and channelopathies.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7618 - Biology of the Eye (1 Credit)**

Crosslisted with OPHT 6610 (for medical students). The objective of this course is to familiarize students with the core concepts and challenges in ophthalmology and vision research. The course integrates cutting-edge basic science with translational research and clinical advances. Pre-req: Must be a graduate student (not a medical student).

Grading Basis: Letter Grade

Typically Offered: Fall.

**NRSC 7650 - Research in Neuroscience (1-10 Credits)**

Research work in neuroscience. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**NRSC 7657 - MATLAB for Neuroscientists (2 Credits)**

MATLAB is an accessible programming environment that is widely used by scientists and engineers and offers powerful tools for data acquisition and data analysis. Students will develop their own MATLAB programs that are relevant to their particular line of research.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NRSC 7661 - Grant Proposal Writing Workshop (1 Credit)**

Course is practical workshop in grant-writing culminating in a mock review panel including course participants. Students will examine various proposal types/formats, then write their own proposal in the format of NRSA fellowship application. Restriction: Students with adequate neuroscience background. Prereq: NRSC 7610.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**NRSC 7662 - Survey of Neuroscience (1 Credit)**

Designed to expose first year graduate students to current topics in neuroscience.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**NRSC 7670 - Advanced Topics in Neuroscience (1-2 Credits)**

This course will consist of discussion of manuscripts relevant to a specific topic in Neuroscience. Prereq: NRSC 7600 or consent of instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**NRSC 7674 - Quantitative Neuroscience (3 Credits)**

In this course, mathematical models and data processing strategies will be introduced as well as other cutting-edge research techniques to help students understand how these techniques can be applied to solve modern neuroscience problems. Prerequisite: See Instructor. Note: This course is taught Downtown according to the Downtown calendar.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NRSC 7675 - Neuroscience, Ethics, & Philosophy (1 Credit)**

Elective course provides overview of issues at the intersection of philosophy/ethics/neuroscience. Format involves lecture, student presentations, and relies heavily on student discussion. Topics focus on arguments relevant to the philosophy of mind along with their implications for the individual/society. Prereq: Successful completion of first year graduate courses.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**NRSC 7700 - Drugs and the Brain (1 Credit)**

This graduate level course, Drugs and the Brain, will introduce students to the field of addiction. The focus will be on how different drugs of abuse work on brain cells and systems to produce their unique physiological and behavioral consequences.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NRSC 7800 - Teaching Neuroscience (1-3 Credits)**

Students will be guided in developing two class sessions in systems neuroscience to be presented in the Systems Neuroscience course, NRSC 7610. Each session will include a practice presentation and post-mortem critique. Prereq: NRSC 7610. Restrictions: Second year students in neuroscience or above. Note: Meets 1 - 3 hours a week for 15 weeks depending on credits signed up for.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**NRSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in neuroscience. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Neurosurgery (NSUR)

**NSUR 8014 - Advanced Neurosurgery (4-12 Credits)**

2-6 wks. Max:8. This course can meet Sub-I qualifications. Intensive rotation emphasizing care and management of neurosurgical patients, with close patient responsibility. Weekly conferences and lectures required and students must present a case with topic discussion.

Recommended for students with interests in neurosurgery, neurology, emergency medicine and trauma surgery.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**NSUR 8100 - NSUR Elective Away (4-8 Credits)**

This Neurosurgery elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered for 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**NSUR 8600 - Research in Neurosurgery (4-24 Credits)**

2-12 wks. A written evaluation must be sent to Dr. Michael Handler and Lauren Buckles. Prereq: Departmental approval must be obtained and all arrangements made at least one month in advance.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**NSUR 8630 - NSUR Research Away (4-24 Credits)**

This Neurosurgery research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Course offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

## Nursing (NURS)

**NURS 3023 - Patient-Centered Health Assessment (3 Credits)**

Focus on knowledge, skills and attitudes needed for patient-centered assessment utilized in nursing practice. Evidence-based assessment skills acquired in the skills and simulation laboratory. Didactic content presented using case studies and multiple learning strategies.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**NURS 3034 - Foundations of Nursing Practice (4 Credits)**

Students investigate the relationship between theory and evidence-based practice to develop the foundations of a generalist nurse.

Critical thinking, clinical judgement, and communication strategies are emphasized.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**NURS 3080 - Nursing Research and Evidence-Based Practice (3 Credits)**

This course will critically evaluate research and clinical expertise to determine optimal patient care utilizing professional writing.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**NURS 3140 - Pathophysiology for Nurses (3 Credits)**

Course will focus on essential concepts underlying pathophysiology and how they pertain to specific body systems. Principles of genetics, environment, cellular biology/adaptation, and immunity will be emphasized to facilitate understanding of exemplar disease processes across major human organ systems.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**NURS 3150 - Pharmacology for Nurses (3 Credits)**

Focus on essential knowledge and attitudes for beginning nursing practice using pharmaceutical agents. Emphasis on integrating knowledge from other foundational courses to learn safe medication practices using a body systems and drug families approach with evidence based foundations.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**NURS 3216 - NURS Honors Seminar I (1 Credit)**

Study of topics relevant to development of the senior thesis proposal and broader discussions and readings related to ethical and leadership roles in the profession of nursing. It is the first in a series of two, junior level Honors Seminars. Prerequisites: Junior level standing in the College of Nursing; enrolled in Honors Program.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3226 - NURS Honors Seminar II (1 Credit)**

Study of topics relevant to development of the senior thesis proposal and broader discussions and readings related to ethical and leadership roles in the profession of nursing. It is the second in a series of two junior level Honors Seminars. Prerequisites: Junior level standing in the College of Nursing; completion of Honors Seminar I; enrolled in Honors Program.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3267 - Health Promotion (2 Credits)**

Course explores health promotion and disease prevention in individuals, families, and populations across the lifespan. Determinants of health, health disparities, and levels of prevention are introduced. Cultural awareness, models/theories to promote health, and evidence based strategies are applied.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3337 - Nursing Care of Childbearing Families (5 Credits)**

Integrates family-centered care, evidence-based practice, safety, teamwork and collaboration, informatics, and quality with emphasis on application of the concepts of health promotion, development, and transitions inherent with childbearing. Prerequisite: Admission to the BS program, successful completion of all beginning level courses.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3447 - Nursing Care of Children and Families (5 Credits)**

Students learn to provide nursing care to children and families by integrating the principles of family-centered care, evidence-based practice, quality and safety, teamwork and collaboration, informatics, genetics, emphasizing health promotion, child development, disability, and transition into the community.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3567 - Mental Health Nursing Practice across the Lifespan (5 Credits)**

Focuses on intermediate level of application of knowledge, skills and attitudes of nursing care for patients with mental health issues. Students provide person-centered nursing care to individuals and groups with alterations in mood, cognition, and behaviors with their families across the lifespan and continuum of care. Department Consent Required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.

Typically Offered: Fall, Spring, Summer.

**NURS 3617 - Medical-Surgical Nursing Practice I (6 Credits)**

Beginning level course focuses on applying pathophysiology, pharmacology and nursing assessment in providing care to individuals in a variety of environments. Students will learn foundational aspects of quality and safety competencies. Simulation will allow the beginning learner to apply knowledge and work on skill acquisition.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**NURS 3667 - Nursing Care of the Older Adult (2 Credits)**

Students build upon previous knowledge, skills, and attitudes to learn how to provide nursing care for a demographically large and diverse population of older adults. Areas examined include: polypharmacy, chronic conditions, physiologic changes, myths, stereotypes, and culturally diverse life experiences.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3727 - Clinical Progression (2 Credits)**

Clinical remediation is a required review of clinical competencies and professional role behaviors following interruption in the baccalaureate nursing program. an individualized learning contract will be developed. Demonstration of current competencies for safe care is required for continued progression. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 3880 - Nursing Role and Practice (2 Credits)**

Learners explore the professional nurses' role in evolving healthcare systems. Context of learning is nursing history, theory, practice standards, issues and trends. Emphasis is futuristic for projections of professional nursing practice and effective teamwork. Foundational legal matters are interwoven throughout.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 4064 - Interprofessional Collaborative Practice (1 Credit)**

This course develops core competencies in teamwork and collaboration for incoming health professions students. Students will learn in interprofessional teams coached by interprofessional faculty, develop essential communication skills and processes for simultaneous and sequential teams, and provide feedback on individual and team performance.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Spring.

**NURS 4074 - Inter-professional Healthcare Ethics & Health Equity (1 Credit)**

This course develops foundational knowledge and basic practical skills to identify, analyze, and resolve ethical and health equity issues in clinical practice through inter-professional collaboration and teamwork.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Fall.

**NURS 4080 - Professional Nursing: Transition into the Role (4 Credits)**

Learners explore the professional nurses' role. Context for learning is nursing history, theory, practice standards, ethical-legal parameters, including emerging issues and trends. Emphasis is on student preparation for transitioning into the professional role with its independent, interdependent, and collaborative functions.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring, Summer.

**NURS 4236 - NURS Honors Seminar III (1 Credit)**

Topics are relevant to the senior thesis and students' career development as leaders in nursing. Seminars provide opportunity for students to share progress and insights with peers and to engage in topical discussions.

first of two senior level Honors Seminars. Prerequisites: Senior level standing in the College of Nursing; completion of Honors Seminars I (NURS 3216) and II (NURS 3226); enrolled in Honors Program.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4246 - NURS Honors Seminar IV (1 Credit)**

Topics are relevant to the senior thesis and students' career development as leaders in nursing. Seminars provide opportunity for students to share progress and insights with peers and to engage in topical discussions.

Second of two senior level Honors Seminars. Prerequisites: Senior level standing in the College of Nursing; completion of Honors Seminars I (NURS 3216), II (NURS 3226) and III (NURS 4236); enrolled in Honors Program.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.



**NURS 4617 - Nursing Care of the Adult Patient with Complex Care Needs (7 Credits)**

Building on concepts from previous coursework, apply theory, client-centered and evidence-based principles to comprehensively care for complex adult patients in acute care settings. Prerequisite: Successful completion of beginning and intermediate courses.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4727 - Independent Study (1-3 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

**NURS 4777 - Community & Population Focused Nursing (5.5 Credits)**

Course focuses on community-oriented & population-focused nursing practice. Using evidence-based practice & public health concepts; students assess, plan, implement, and evaluate health interventions to individuals, families, and populations. Emphasis is on environment, social justice, advocacy, interprofessional teamwork, and cultural awareness. Prerequisite: Admission to the BS program. Successful completion of beginning and intermediate Nursing courses.

Grading Basis: Letter Grade

Repeatable. Max Credits: 5.5.

Typically Offered: Fall, Spring, Summer.

**NURS 4800 - Evidenced-Based Nursing Practice & Research for the RN (4 Credits)**

Course introduces research processes and application in EBP. RN students learn to critically evaluate research findings for application in safe, quality nursing practice. Nursing theories and ways of knowing are explored regarding their impact on development of nursing science.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4824 - Professional Nursing Role Development - RN (4 Credits)**

This course explores the influence of historical/philosophical foundations, issues, and future trends on professional practice and role development in RN-BS nursing education. Examines ethical decision-making, critical thinking, reflective practice, and accountability within the ethical and legal parameters of nursing practice. Prerequisite: Successful completion of all courses in the student's chosen sequenced program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring, Summer.

**NURS 4850 - Introduction to Health Care Informatics - RN (3 Credits)**

Understand and apply knowledge and skills in information and communication technologies to enhance the delivery of quality patient care. Concepts of data, information, knowledge and wisdom, to inform care delivery are examined. Professional roles and responsibilities will be explored.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4860 - Quality, Safety, & Innovative Nursing Practice-RN (4 Credits)**

Understand and apply QSEN knowledge, skills, and attitudes to improve and evaluate care delivery within a health care microsystem. Concepts and processes of quality improvement based on evidence are identified. Teamwork/communication/collaboration and transitions of care are explored.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4877 - Population-Based Nursing - RN (6 Credits)**

Course focuses on the professional nursing role in population-focused health promotion, disease prevention, and the continuum of care.

Theories, concepts, and social determinants of health inherent in population-based nursing and transitions of care are explored through course work and practicum.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4887 - Nursing Leadership in Complex Organizations I (4 Credits)**

This course provides the foundation needed to provide oversight and accountability for care delivery across a variety of settings; continuing development as a leader/innovator in improving patient care; and a solid understanding of health care policy, economics, and complex organizations.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4897 - Nursing Leadership in Complex Organizations II (5 Credits)**

Explores nursing leadership roles in promoting positive patient outcomes. Uses evidence-based practice to facilitate clinical reasoning/inquiry in providing safe, quality, person-centered care. Professional development is promoted through transformational leadership & management competencies. Includes capstone quality improvement project.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 4917 - Immersion in Clinical Nursing (8 Credits)**

Learning emphasizes synthesis of previous coursework/knowledge for transition to professional BS graduate nurse role. Through clinical immersion experiences, development of independent nursing practice, skills for safe, cost-effective, evidence-based clinical decision making & guided application of leadership & management theory & skills occurs.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5899 - Advanced Practicum (1-6 Credits)**

Clinical course that focuses on demonstrating competence in the Advanced Practice role with a selected population.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**NURS 5901 - AG CNS Advanced Practicum I (1-3 Credits)**

Clinical Nurse Specialist students begin to gather and organize data to base clinical decisions upon and promote moral agency. Students begin to advocate for patient and family health outcomes. Consultation and collaboration with an interdisciplinary team is emphasized. Prerequisite: NURS 6243; Co-requisite: NURS 6222, 6761

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5902 - AG CNS Advanced Practicum II (1-3 Credits)**

Clinical Nurse Specialist students demonstrate clinical decision making, refine diagnoses, and explore the role to Influence of health systems change. Advocacy and moral agency for patient and family health outcomes continues. Consultation and collaboration with an interdisciplinary team are demonstrated. Prerequisite: NURS 6243; Co-requisite: NURS 6222, NURS 6761, NURS 5901

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5903 - AG CNS Advanced Practicum III (1-3 Credits)**

Clinical Nurse Specialist students adapt clinical decisions to manage ill and aging patients. Students advocate for advancing patient and family health outcomes. Advocacy and moral agency for health outcomes are incorporated into consultation and collaboration with an interdisciplinary teamwork. Prerequisite: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5902

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5904 - AG CNS Advanced Practicum IV (1-3 Credits)**

Clinical Nurse Specialist students formulate clinical decisions to manage ill and aging patients and patient and family health outcomes. Students practice as moral agents and are expected to manage health systems initiatives in consultation and collaboration with an interdisciplinary team. Prerequisite: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5903

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5911 - PNP Advanced Practicum I (3 Credits)**

Primary Care Pediatric Nurse Practitioner students begin to provide direct patient care, health screenings, and organize data for clinical decisions. Students work with patients and families to establish health goals. An Interdisciplinary approach is emphasized in clinical and classroom settings. Pre-requisites: NURS 6243, NURS 6222, NURS 6761, co-requisite NURS 6478

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5912 - PNP Advanced Practicum II (3 Credits)**

Advanced beginner Primary Care Pediatric Nurse Practitioner students provide direct patient care, health screenings, and organize data for clinical decisions. Students begin to demonstrate interdisciplinary leadership and clinical decision making while working with patients and families to cultivate health goals. Requisite: NURS 5911, NURS 6478

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5913 - PNP Practicum III (3 Credits)**

Primary Care Pediatric Nurse Practitioner students provide direct patient care and integrate patient data to provide well child care and manage acute and chronic conditions. Interdisciplinary care coordination is emphasized to assist patients and families to meet health goals.

NURS 5911, NURS 5912, NURS 6478 Co-req: NURS 6488

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5914 - PNP Advanced Practicum IV (3 Credits)**

Primary Care Pediatric Nurse Practitioner students become competent at making clinical decisions for well child care, acute and chronic conditions, manage primary pediatric nursing care initiatives, and lead interdisciplinary teams to partner with patients and families to meet health goals. prereq: NURS 6478, NURS 6488, NURS 5911, NURS 5912, NURS 5913 co-req: NURS 6496

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5921 - AC-PNP Practicum I (2 Credits)**

Acute Care Pediatric Nurse Practitioner students begin to provide direct patient care and gather and organize data for clinical decisions. Students will work with stable patients and families in primary care oriented settings. An interdisciplinary approach is emphasized. NURS 6243, NURS 6222, NURS 6761, NURS 6450; co-requisites: NURS 6450, NURS 6490

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5922 - AC PNP Advanced Practicum II (2 Credits)**

Acute Care Pediatric Nurse Practitioner students provide direct patient care and utilize patient and diagnostic assessment data to make clinical decisions. Students begin to demonstrate interdisciplinary collaboration when working with patients and families to support health outcomes.

Prerequisite: NURS 5921 Co-requisite: NURS 6456

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5923 - AC PNP Advanced Practicum III (3 Credits)**

Acute Care Pediatric Nurse Practitioner students provide direct patient care and integrate patient data to to manage and support health outcomes for acute, complex, and chronic pediatric patients. Interdisciplinary care coordination across the continuum is emphasized.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5924 - AC-PNP Practicum IV (3 Credits)**

Acute Care Pediatric Nurse Practitioner students become competent at making clinical decisions for acute, complex, critical, and chronic conditions; use independent and collaborative decision making as members of interdisciplinary teams; and assist patients and families with navigating healthcare systems. NURS 5923; Co-requisite NURS 6510

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5925 - AC PNP Advanced Practicum V (3 Credits)**

Acute Care Pediatric Nurse Practitioner students evaluate and adapt therapeutic interventions, provide direct management for stable and unstable acute, complex, critical and chronic conditions; and advocate for improved patient/family outcomes through leadership on interdisciplinary teams and/or nursing initiatives. Prerequisite: NURS 5924 Co-requisite: NURS 6520

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5931 - FNP Practicum I (3 Credits)**

Family Nurse Practitioner students begin to provide direct patient care, physical and behavioral health screenings, and work with patients and their families to establish health and wellness goals. An interdisciplinary approach is emphasized in the clinical and classroom setting. Pre-req: NURS 6761, NURS 6222, NURS 6243

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5932 - FNP Practicum II (3 Credits)**

Family Nurse Practitioner students provide direct patient care through refining differential diagnoses based on available patient data. Students begin to demonstrate interdisciplinary leadership and clinical decision making while working with patients and their families to cultivate health and wellness goals. Pre-req: NURS 5931

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5933 - FNP Practicum III (4 Credits)**

Family Nurse Practitioner students provide direct patient care through integrating available physical and behavioral patient data into the management of acute and chronic conditions. Interdisciplinary care coordination is emphasized to assist patients and families to meet health and wellness goals. Pre-requisite: NURS 5931, NURS 5932

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5934 - FNP Practicum IV (4 Credits)**

Family Nurse Practitioner students make clinical decisions for acute and chronic conditions, manage primary nursing care initiatives, and lead interdisciplinary teams to partner with patients and families to meet health and wellness goals. Pre-Req: NURS 5931, NURS 5932, NURS 5933

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5941 - NMW Advanced Practicum I (2-4 Credits)**

This clinical course is designed to apply knowledge attained from didactic coursework in GYN and Care of the Childbearing Family I and develop skills and attitudes necessary to successfully manage the midwifery care of women in the outpatient setting. Prerequisite: NURS 6204, NURS 6344

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5942 - NMW Advanced Practicum II (4 Credits)**

Clinical course designed to apply knowledge attained from Care of the Childbearing Family II and Primary Care of Women and develop skills and attitudes necessary to manage the midwifery care of women and newborns in the inpatient and outpatient settings. Prerequisite: NURS 5941

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 5943 - NMW Advanced Practicum III: Integration (8 Credits)**

Culminating clinical experience of the 3-semester sequence of clinical courses. This experience combines all areas of the Core Competencies in full-time clinical participation. Prerequisite: NURS 5941, NURS 5942

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5951 - NMW Intrapartum Practicum I (2 Credits)**

Clinical course facilitates development of nurse-midwifery management skills in delivering care to women in an inpatient setting, caring for antepartum, intrapartum, immediate postpartum and newborn patients. Deviations from normal allow for consultation, collaboration and referral within an interdisciplinary team. Pre-requisite: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5952 - NMW Intrapartum Practicum II (2 Credits)**

Clinical course facilitates development of nurse-midwifery management skills in delivering care to women in an inpatient setting, caring for antepartum, intrapartum, immediate postpartum and newborn patients. Deviations from normal allow for consultation, collaboration and referral within an interdisciplinary team. Pre-requisites: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5953 - NMW Intrapartum Practicum III (2 Credits)**

This course, combined with 6758 C30, is an advanced practicum experience where synthesis of didactic specialty courses and the nurse-midwifery management process can occur. The emphasis is on refinement of practice and transition to the role of a professional nurse-midwife. Pre-requisite: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5954 - NMW Intrapartum Practicum IV (4 Credits)**

This course, combined with 6757 C15, is an advanced practicum experience where synthesis of didactic specialty courses and the nurse-midwifery management process can occur. The emphasis is on refinement of practice and transition to the role of a professional nurse-midwife. Pre-requisite: NMW Nurse Midwifery Intrapartum NURS5951-5954 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5961 - WHNP Advanced Practicum I (3 Credits)**

This clinical course is designed to apply knowledge attained from didactic coursework and develop skills and attitudes necessary to successfully manage reproductive health in the outpatient environment. The student must meet the competency of each expected outcome by the end of 135 clinical hours. Requisite: NURS 6761, NURS 6243, NURS 6222

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5962 - WHNP Advanced Practicum II (4 Credits)**

This clinical course is designed to apply knowledge attained from didactic coursework and develop skills and attitudes necessary to successfully manage reproductive/sexual health in the ambulatory care environment. Pre: NURS 5961, Co-requisite: NURS 5963

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5963 - WHNP Advanced Practicum III (3 Credits)**

This clinical course is designed to apply knowledge attained from didactic course work and develop skills and attitudes necessary to successfully manage complex reproductive /sexual health in the ambulatory care environment. Pre: NURS 5961, Co-requisite: NURS 5962

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5964 - WHNP Advanced Practicum IV (4 Credits)**

Culminating clinical experiences of the Women's Health Nurse Practitioner Program, this experience combines all areas of core competencies and in consultation with the preceptor. Pre: NURS 5963

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5971 - AGPCNP Practicum I (3 Credits)**

Clinical course that refine competencies as an Advanced Practitioner with a selected client population. The student must achieve a minimum of competency demonstrated 10 outcome areas by the end of 135 cumulative hours. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5972 - AGPCNP Practicum II (3 Credits)**

Clinical course that refines competencies as an Advanced Practitioner with a selected client population, 19 outcomes are assessed. A minimum competency must be demonstrated in each outcome area by the end of 135 course clinical hours and cumulatively 270 hrs. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5973 - AGPCNP Practicum III (3 Credits)**

Clinical course to refine competencies as an Advanced Practitioner with a selected client population. 23 outcomes are assessed. Student achievement of "at expected level" for each outcome area demonstrated by the end of 135 clinical hours and cumulatively 405 hrs. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5974 - AGPCNP Practicum IV (3 Credits)**

Clinical course to refine competencies as an Advanced Practitioner with a selected client population. 24 outcomes are assessed. Student achievement of "at expected level" for each outcome area demonstrated by the end of 135 clinical hours and cumulatively 540 hrs. Pre-requisite: AG-PCNP Adult Gerontology Primary Care Nurse Practitioner Program NURS5971-5974 (revising clinical courses previously NURS6755, 6756, 6757, 6758)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5981 - AGACNP Practicum I (3 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students begin to provide direct patient care and gather and organize data for clinical decisions. Students work with stable, acute patients and their families. Interdisciplinary approach is emphasized. Acute care NP role is explored. Pre: NURS 6243, NURS 6222 Pre/Co: NURS 6761, NURS 6599

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5982 - AGACNP Practicum II (3 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students provide direct patient care and utilize patient and diagnostic assessment data to make clinical decisions. Students begin to demonstrate interdisciplinary collaboration when working with patients and families. Acute care NP role is demonstrated. Pre: NURS 6243, NURS 6222, NURS 6600, NURS 6761, NURS 5981

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5983 - AGACNP Practicum III (4 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students provide direct patient care and integrate patient data to manage and support patients with stable and unstable acute conditions. Interdisciplinary care coordination is emphasized. Students adapt situationally in the acute care NP role. Pre: NURS 6600, NURS 5982 Co: NURS 6620

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5984 - AGACNP Practicum IV (4 Credits)**

Adult Gerontology Acute Care Nurse Practitioner students become competent at making clinical decisions for stable and unstable acute patient conditions. Independent and collaborative decision making as members of interdisciplinary teams is highlighted. Students perform in the acute care NP role. Pre: NURS 6620, NURS 5983 Co: NURS 6610

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 5991 - PMHNP Advanced Practicum I (2 Credits)**

For the PMHNP student, competencies for this level include a psychiatric evaluation and beginning skills in individual and group therapies across the lifespan. The student must meet the competency of each expected outcome by the end of 90 clinical hours. Requisite: NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5992 - PMHNP Advanced Practicum II (3 Credits)**

For the PMHNP student, competencies for this level include developing shared decision-making of evidence-based psychopharmacology and enhanced communication skills in individual and group therapies across the lifespan. The student must meet all outcomes by the end of 135 clinical hours. Requisite: NURS 5991, NURS 6664

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5993 - PMHNP Advanced Practicum III (3 Credits)**

For the PMHNP student, competencies for this level include adapting treatment planning, pharmacotherapies and non-pharmacotherapies to multiple populations based on evidence-based strategies and culturally sensitive relationship development. The student must meet all outcomes by the end of 135 clinical hours. Requisite NURS 5992, NURS 6664, NURS 6665

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 5994 - PMHNP Advanced Practicum IV (6 Credits)**

For the PMHNP student, competencies include the management of complex treatments plans based on evidence-based pharmacological and non-pharmacological interventions for mental disorders across the lifespan and settings. The student must meet all outcomes by the end of 270 clinical hours. Requisite: NURS 5993, NURS 6664, NURS 6665

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6009 - Theory Foundation for Advanced Nursing (3 Credits)**

The course provides an introduction to nursing's philosophical, ethical, and theoretical frameworks as guides for practice. Nursing theories, grand, middle-range, and ways of knowing will be analyzed. Students will develop a beginning model for practice based on their nursing philosophy.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6015 - Women & War (3 Credits)**

Roles of women during war, gender specific policies, deployment considerations including reproductive & urogenital health, military sexual trauma, and psychological effects of deployment. Appraise women's experience, roles in the family, reintegration to community, and selected issues related to war-time service.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.



**NURS 6017 - On the Home Front: Supporting Vet & Military FamiliesI (3 Credits)**

Dynamics and attributes of military/veteran families during and after military service. Explores issues of deployment, reintegration, parenting, compassion fatigue, and living with sequelae of combat stress (family violence, suicide, homelessness, PTSD) Evaluates preparation of civilian providers and family care interventions.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6018 - Home from the Battlefield: Psychological Health Care (3 Credits)**

Introduction to veteran/military culture and historical perspectives of war. Exploration of post-traumatic stress disorder, traumatic brain injury, suicidality and effects of psychological health on family and parenting. Issues related to diversity, reintegration, redeployment, health care navigation and ethics.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6019 - Wounds of War: Military & Veteran Disability Evls (3 Credits)**

Detailed examination of military/veteran integrated disability evaluation system including processes, policies, clinical conditions, & complex case studies. Investigate benefits associated with service-connected disabilities, special considerations for Reserve/Guard members, & assistance in preparing for disability evaluation and appeals.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 6023 - Veteran and Military Health Care Systems (3 Credits)**

Sociopolitical, economic, ethical and current national health care issues confronting the veteran and military health care delivery systems. Examination of overall structure, functions, and processes, and influence of these contextual elements on policies guiding/regulating the organization/delivery of services.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6024 - Caring for Veterans: Aging, Chronicity, & End of Life (3 Credits)**

Explores aging/chronicity in veteran populations, environmental exposures in military environments, and long term effects of chemical, biological, radiological, nuclear, explosive materials. Examines specific service connected conditions for veterans of Vietnam, Gulf War, and Iraq/Afghanistan and end-of-life care.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6025 - Veteran and Military Health Care Admin Internship (2 Credits)**

This course enables students to integrate and apply veteran and military health care competencies in an advanced nursing practice role. The preceptored internship facilitates engagement in administrative roles and empowers students to innovate in health care delivery practices.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6070 - Policy and Politics of Health (3 Credits)**

This course prepares students to promote health by examining the influence of policy at local, state, national and global levels. Students will analyze healthcare policies in the context of emerging models of care, and ethical, social, political and legal environments.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6107 - Research & Quality Improve Methods:Principles of Evidence (3 Credits)**

This course focuses on methods of knowledge generation applicable to advanced practice nursing. Quantitative and qualitative methods are presented in the context of evidence-based practice. Students will evaluate evidence from multiple sources, including research knowledge, clinical expertise, and patient preference.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6108 - Inferent Statistics & Quality Improvement Applying Evidence (3 Credits)**

This intermediate research and QI methods course covers database management, descriptive statistics, correlation, prediction and regression, hypothesis testing, and analytic methods for quality improvement projects. Material is made relevant to nursing by use of actual nursing research studies as examples.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6109 - Evidence-Based Practice: Evaluating Evidence (3 Credits)**

Evidence-based Practice: Evaluating Evidence integrates beginning research and statistics knowledge to guide in the development of PICOT questions to address health priority issues. Skills in finding, appraising, and synthesizing evidence to improve quality, safety and cost-effectiveness of patient care

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6222 - Adv Pharm & Therapeutics (3 Credits)**

This course prepares advanced practice nursing students to manage drug therapy for various client populations and settings. Pharmacokinetic and pharmacodynamic principles and evidence-based practice form the foundation for consideration of the pharmacotherapeutics of selected conditions and drug groups. Prereq: NURS 6243.

Grading Basis: Letter Grade

**NURS 6243 - Adv Pathophysiology (3 Credits)**

Advanced concepts of the dynamic aspects of disease processes provide a foundation for the assessment and management of acutely or chronically ill clients. Epidemiology, etiology, genetics, immunology, lifespan and cultural concepts, diagnostic reasoning, and current research findings are integrated throughout. Prereq: Graduate standing or permission of instructor.

Grading Basis: Letter Grade

**NURS 6274 - Semantic Representation (3 Credits)**

Introduces the concept of classifying nursing phenomena to facilitate data management and retrieval. Topics include: minimum data sets, nursing language, classification systems and vocabularies, and relates each topic to nursing practice, administration, and research.

Grading Basis: Letter Grade

**NURS 6279 - Knowledge Management (3 Credits)**

The need for knowledge discovery, distribution, and management in clinical settings is examined. Knowledge Management techniques (probabilistic/ statistical models, machine learning, data mining, queuing theory, computer simulation) are examined. The specification of a knowledge management comprehensive system for healthcare is developed. Prereq: Minimum of one informatics course or permission of instructor.

Grading Basis: Letter Grade



**NURS 6284 - Digital Tools for Connected Health (3 Credits)**

This course examines the use of digital tools to foster engagement of patients, families and consumers in their health care. This course examines the evidence and the legal, ethical, social and policy issues within the context of connected health.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6285 - HCI Design Principles (3 Credits)**

Examines the relationship of interface design to effective human interaction with computers. This course examines principles, theory and models to design and evaluate optimal interfaces to promote human computer interaction in health care informatics applications. Online course skills.

Grading Basis: Letter Grade

**NURS 6286 - Foundations Informatics (3 Credits)**

This introductory course focuses on core concepts, skills, tools that define the informatics field and the examination of health information technologies to promote safety, improve quality, foster consumer-centered care, and efficiency.

Grading Basis: Letter Grade

**NURS 6289 - Information Systems Life Cycle (4 Credits)**

This course focuses on a structured approach to information system development and implementation. The course addresses the five phases of the life cycle: planning, analysis, design, implementation and evaluation. Prereq: Minimum of one informatics course or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6293 - Database Mgmt Systems (3 Credits)**

An interdisciplinary course focused on design and application challenges in database management systems. Concepts of database modeling, querying, and reporting are explored. Students apply database concepts to clinical registries and Meaningful Use queries. Prereq: NURS 6304 or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6303 - Epidemiology & Health (3 Credits)**

Concepts and methods of epidemiology are applied to advanced nursing practice. Disease causation models and environmental factors are used to examine risks. Issues of environmental justice, models of health promotion, and disease prevention for populations will be examined and evaluated. Prereq: Graduate standing or permission of instructor.

Grading Basis: Letter Grade

**NURS 6344 - NMW Gynecologic Care (3 Credits)**

This course facilitates development of critical thinking necessary for the application of midwifery management of women for well woman gynecologic care, including routine screening and health promotion, and problem-oriented gynecologic care, including screening, diagnosis, medication management, and collaborative management or referral of women with gynecologic abnormalities. Prerequisites: NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6374 - NMW/WHNP Adv Clinical Skills - Outpatient (1 Credit)**

Clinical skills and simulation course provides training in skills necessary to provide antepartum and gynecologic care, with additional instruction in working as a member of an interprofessional team.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6375 - NMW Advanced Clinical Skills - Inpatient (1 Credit)**

Clinical skills and simulation course provides training in skills necessary to provide intrapartum and newborn care, with additional instruction in working as a member of an interprofessional team. NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 6376 - Reproductive Physiology (3 Credits)**

This comprehensive course on human reproduction focuses on women's health, maternal, fetal, neonatal anatomy and physiology, and physiology of human lactation, with additional focus on pharmacology in pregnancy and lactation. Prerequisites: NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6377 - Foundations of Midwifery Care (2 Credits)**

Overview of the basic components of midwifery care in the United States and globally, including midwifery-specific history, philosophy, ethics, finance, scholarship, and epidemiological aspects of care for women.

Prerequisites: NURS 6009, NURS 6859

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6378 - Care of the Childbearing Family I (3 Credits)**

This course facilitates development of critical thinking necessary for the advanced practice management of women during the antepartum and postpartum periods, including screening, diagnosis, collaborative management or referral of women at risk for complications.

Prerequisites: NURS 6190, NURS 6192, NURS 6344; Co-requisite NURS 5941

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6379 - Care of the Childbearing Family II (4 Credits)**

Facilitates development of critical thinking and clinical reasoning necessary for nurse-midwifery management of women during the peripartum and immediate postpartum periods and the well newborn during the first 28 days of life. Prerequisites: Prerequisite: NURS 6378; Co-requisite NURS 5942

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**NURS 6434 - FNP Care of the Pediatric Patient (3 Credits)**

This course provides FNP students with evidence-based research and practice guidelines to provide acute, chronic, and behavioral health in the pediatric primary care setting. Cultural, socioeconomic, and geographic factors influencing the pediatric patient and population health outcomes will be explored. NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6450 - Advanced Pediatric Physical Assessment (1 Credit)**

This course builds on previously learned physical assessment skills to prepare the pediatric nurse practitioner to conduct comprehensive and focused assessments. Critical thinking is emphasized as primary means for collecting and analyzing data obtained from the history and physical examination. Pre-requisite: NURS 6761, Co-requisite NURS 6478, NURS 5911 (PNP) or NURS 6772, NURS 5921 (PAC)

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6456 - Advance Pediatric Clinical Skills (1 Credit)**

This course builds on the skills developed in the Advanced Assessment course & Advanced Pediatric Assessment Course to prepare the pediatric nurse practitioner to integrate clinical scenarios with hands-on skill performance with pediatric patients. This course is offered with a PASS/FAIL grade option only. Pre: NURS 6761, Pre/Co: NURS 6450

Grading Basis: Pass/Fail Only

Typically Offered: Spring.

**NURS 6478 - Primary Care of Children: Well Child Care (4 Credits)**

The first course in the PNP curriculum focuses on well child care including advanced assessment, health promotion, disease and disability prevention, and common developmental issues. Well child care is addressed within the context of patient, family, and inter-professional teams. Pre-requisites: NURS 6222, NURS 6243, NURS 6761; Co-requisite NURS 5911

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6488 - Pediatric Minor and Acute Illness (3 Credits)**

This course focuses on evidence-based approaches to diagnosing and managing minor acute illnesses from birth through adolescence. Developmental aspects of healthcare for children presenting with common biobehavioral/biophysical symptoms are addressed within the context of the patient, family, and inter-professional teams.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**NURS 6490 - Pediatric Primary Care Essentials (3 Credits)**

Students learn pediatric primary care with a focus on family centered approaches to well-child care and minor acute and chronic illness. Knowledge gained can be applied to the continuum of pediatric care across primary, urgent, specialty, and acute settings. Prerequisites: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5921

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6496 - Pediatric Chronic Illness and Disability (3 Credits)**

The third course in the PNP curriculum focuses on assessment, diagnosis and evidence-based management of children with disabilities and chronic illness. Care for children with disabilities and chronic illness is addressed within the context of patient, family, and inter-professional teams. Requisite: NURS 6761, NURS 6222, NURS 6243, NURS 6477, NURS 6487

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**NURS 6500 - Acute Care Pediatric Nurse Practitioner I (3 Credits)**

Content pertinent to the urgent, emergent, and critical care management of acute illness/traumatic injury and exacerbation of chronic illness in a systems approach. Topics include analgesia/sedation, fluid/electrolyte abnormalities, GI disorders/nutrition, cardiac and pulmonary conditions and infectious diseases. Post-Grad Certificate - certification as PNP or FNP. Coreq-NURS6756-08 minimum 1 credit. MS student prereqs-NURS 6010, NURS 6031, NURS 6222, NURS 6243, NURS 6761, NURS 6772, co-req-NURS 6755-CO8

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6510 - Acute Care Pediatric Nurse Practitioner 2 (3 Credits)**

Content pertinent to the urgent, emergent, and critical care management of acute illness and the acute exacerbation of chronic illness presented in a systems approach. Systems include neurology, hematology/oncology, endocrine, metabolic, nephrology and genetics. Post-Grad Certificate - Completion of NURS 6500, minimum 2 credits NURS 6756-08. MS students pre-reqs - NURS 6761, NURS 6243; NURS 6222, NURS 6010, NURS 6031, NURS 6772. Co-req-NURS 6755-08.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6520 - Acute Care Pediatric Nurse Practitioner 3 (3 Credits)**

Content on the urgent, emergent, and critical care of acute illness/trauma and exacerbation of chronic illness in a systems approach. Systems include musculoskeletal disorders, traumatic injury, toxicology, mental health, ENT and Ophthalmology. Special populations: chronic pain, palliative/end-of-life care. Post-Grad Certificate - NURS 6500, minimum 2 credits NURS 6756-08. MS students pre-req - NURS 6761, NURS 6243, NURS 6222, NURS 6010. NURS 6031 and NURS 6772. Co-requisite NURS 6755-08.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6528 - FNP DM Physio & Psych Health I (3 Credits)**

This course applies an evidence-based, family-centered approach when managing behavioral and physical health in the primary care setting. Synthesis of differential diagnoses for acute and chronic conditions is emphasized. Strategies for the development of wellness goals and self-efficacy are provided. NURS 6640

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6529 - FNP DM Physio & Psych Health II (3 Credits)**

This course evaluates the effectiveness of an evidence-based, family-centered approach to behavioral and physical health. An emphasis is placed on the design of wellness goals and the creation of management plans. Solutions to common challenges in primary care are proposed.

Requisite: NURS 6528, NURS 6640

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6549 - FNP Adv. Clinical Skills (1 Credit)**

Students will explore the framework used to make evidence-based clinical decisions in the physical and behavioral primary care of families. Confidence is built in the ability to perform procedures as well as gather, interpret, and evaluate laboratory and diagnostic data. NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6599 - Intro to AG-ACNP (1 Credit)**

Introduces students to basic skills needed to perform as an AG-ACNP within an acute care setting. Provides instruction on how to deliver adequate patient presentations as well as how to prioritize, understand, and report data into a broad differential diagnosis.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6600 - Adult Gerontology Acute Care Nurse Practitioner I (3 Credits)**

Builds on the concepts of advanced health assessment, diagnosis and management, and treatment of acute problems in adults. Emphasis placed on the specialty areas of urgent, emergent, and critical care. Patient care and systems oriented advanced practice roles are included.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6603 - Health Systems and Management (3 Credits)**

This course provides students an overview of the U.S. Healthcare System, its key components and their functional relationships. Students learn about the organization, management, and financing of the U.S. Healthcare System.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6610 - Adult Gerontology Acute Care Nurse Practitioner 2 (3 Credits)**

Builds on the concepts of advanced health assessment, diagnosis and management, and treatment of acute problems in health. Additional focus on leadership development within acute care settings and effecting change within an interdisciplinary, integrated health system. Prerequisite: NURS 6600

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6620 - Adult Gero Acute Care NP Diagnostics & Therapeutics (2 Credits)**

Introduces students to the principles of diagnostic and therapeutic modalities used in acute/critical care settings. Includes analysis of relevant laboratory data and interpretation of radiographs and ECG's. Provides instruction on acute technical skills including intubation and central line insertion. Prerequisite: NURS 6610

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6633 - Advanced Public Health Nursing (3 Credits)**

Course provides the learned with: foundations of advanced public health nursing practice; advanced knowledge of population health and care coordination; essentials of program planning, implementation, and evaluation; and community practicum experiences leading to capstone development and completion. Prereq: NURS 6010, NURS 6011.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6640 - FNP Hlth Promotion, Prevention, Screening (3 Credits)**

This class introduces students to primary care evidence-based research and practice guidelines important for physical and behavioral health promotion and protection. The family nurse practitioner role in family health and wellness will be emphasized.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6659 - Adv Assess, Neurobiology & Psychopharm Across Lifespan (3 Credits)**

Focus on integration of neurobiological and psychopharmacological theory and research to assessment, symptomatology and treatment of psychiatric disorders across the lifespan. Prerequisite: Psychotherapy, NURS6664, NURS6243, Principles of Evidence, NURS6761, NURS6222. If DNP additional courses, NURS6303, Evaluate Evidence, Applying Evidence

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6661 - Diagnosis and Management/Adults PMHNP (3 Credits)**

Advanced knowledge of evidence-based psychiatric-mental health nursing including assessment, diagnosis, health promotion, management, and evaluation of adults with mental illnesses and addictions.

Emphasis on neurobiology, complex psychopharmacological and non-pharmacological treatments, and culturally-sensitive nursing interventions. Prereq: NURS 6660. Coreq: NURS 6756-6758, 3 cr hrs.

Grading Basis: Letter Grade

**NURS 6662 - Diagnosis and Management/Children and Older Adult PMHNP (3 Credits)**

Advanced psychiatric nursing assessment, diagnosis, health promotion, management, and evaluation of children, adolescents, and older adults. Emphasis on complex individual, family, group, and non-pharmacologic nursing interventions, neurobiology, psychopharmacological treatments, and developmentally appropriate, culturally-sensitive nursing interventions. Variable credits: Child (2); all populations (3) Prereq: NURS 6660; approval from Option Coordinator of FPMHMP Program.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6664 - Integrated behavioral health care & common psychiatri (3 Credits)**

Overview of behavioral health assessment of common psychiatric disorders and medical conditions with psychiatric presentations across the lifespan. Focuses on integrated care settings, interdisciplinary communication, care coordination within a trauma-informed setting. Guidelines for telepsych and social media will be discussed. Prerequisite: NURS 6243, NURS 6222 or permission of instructor

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6665 - PsyTherapy, Behavioral Change & HP Lifespan (3 Credits)**

Theoretical foundational knowledge of individual, group, and family therapy, health promotion and disease prevention for the PMHNP across the lifespan. Focuses behavior change and use of Cognitive behavioral, dialectical, solution focused, play, and reminiscence therapy, motivational interviewing across the lifespan. Prerequisite: In the PMHNP option, or approval by course faculty

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6739 - Ob-Gyn Essentials for the FNP (3 Credits)**

NURS 6739 will provide an overview of normal anatomy and physiology, health prevention and common acute gynecology, pregnancy and postpartum problems commonly seen in the primary care of women over the lifespan. Requisite: NURS 6222, NURS 6761, NURS 6243, NURS 6818

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6740 - ADULT-GERONTOLOGY CNS WELLNESS TO ILLNESS (3 Credits)**

Focus is on knowledge acquisition and skill development for Adult-Gerontology Clinical Nurse Specialist. The course provides learning of concepts of wellness, health maintenance, aging, palliative care as a model for health, evidence-based practice, skill development, clinical decision-making and APN role.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6742 - Adult-GerontologyCNS AdvancedPractice  
AcuteCareNursing (3 Credits)**

This course builds CNS knowledge and skills managing the care of acutely ill patients across the continuum during acute illness episodes. CNS practice incorporating three spheres, healthcare systems, patients/families and nursing practice excellence are central to course content  
Grading Basis: Letter Grade

**NURS 6744 - Advanced Concepts in Palliative Care (3 Credits)**

The course focuses on palliative care specialty knowledge, and skills for the advanced practice nurse. Course content includes: assessment, advance care planning, advocacy, approaching death, communication skills, ethical issues, palliative care in diverse populations and settings, and current best evidence. Prereq: NURS 6010, NURS 6031, NURS 6761, NURS 6858. Coreq: Enrollment in a minimum of 1 cr hr in NURS 6755 or NURS 6756, or permission of instructor.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6746 - Adult-Gero CNS Complex patient management (3 Credits)**

Focuses is on management of patients with acute and chronic illness in adults by Clinical Nurse Specialist. Integration of advanced skill development, theory, evidence-based symptom, disease management, clinical decision making, leadership, system organizational strategies, professional issues, and APN role transition.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6747 - Practical Applications in Palliative Care Programming (3 Credits)**

An advanced course focusing on sustainable palliative care program development in acute, post-acute, and ambulatory settings including: leadership effectiveness, financial and reimbursement principles, quality monitoring and improvement, innovation, public policy, access to palliative care services, organizational integrity & compliance.  
Prerequisite: NURS6744, NURS6745  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**NURS 6752 - Advanced Public Health Nursing Practicum I (1-6 Credits)**

Course provides the learner with advanced public health nursing clinical/practicum experiences in community-based settings. Associated seminars of clinical experiences will compliment didactic course content.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 9.  
Typically Offered: Fall, Spring, Summer.

**NURS 6759 - Informatics Adv Practicum (3-6 Credits)**

This course allows students to integrate and apply informatics competencies in an advanced nursing practice role. The preceptored practicum and project require the student to engage in informatics specialist roles within a variety of health care settings. Prereq: Completion of a minimum of three informatics specialty courses.  
Grading Basis: Letter Grade  
Repeatable. Max Credits: 20.

**NURS 6761 - Advanced Assessment (3 Credits)**

Students develop advanced skills in interviewing, physical examination, critical thinking, diagnostic tool use, and documentation required of advanced practice nurses providing care for clients across the lifespan. Case study analyses are used to expose students to common health complaints seen. Prereq: NURS 6243 preferred.  
Grading Basis: Letter Grade

**NURS 6782 - Advanced Public Health Nursing Practicum II (1-6 Credits)**

Course builds on Adv PHN Practicum I to give the student advanced public health nursing clinical/practicum experiences with more depth in Tier II and Tier III competencies, especially in public health leadership and management.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6785 - Complex Symptom Mgmt in Palliative Care (3 Credits)**

An advanced theory course addressing the human experience of pain and non-pain symptoms associated with chronic and/or terminal serious illness. The course emphasizes Caring Science as a foundational approach for meeting symptom management needs of the palliative care population. NURS 6744  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 6790 - Systems and Leadership Theory (3 Credits)**

This course focuses on the contemporary theories as they apply to healthcare systems and the managerial role. The course includes critical analysis of organizational, leadership, change and evidence-based practice theories. Emphasis is placed on application of theory to organizational analysis.  
Grading Basis: Letter Grade  
Typically Offered: Fall.

**NURS 6793 - Relational Communication (3 Credits)**

Study of theory, research, and praxis of relational communication with interpersonal, group, and organizational contexts. Relationship-building, effective communication and leadership competencies are emphasized for safety and quality improvement through reflection and self-awareness, shared decision-making, coaching, conflict management, and political navigation.  
Grading Basis: Letter Grade  
Typically Offered: Spring.

**NURS 6794 - Decision Support and Data Management (3 Credits)**

This course focuses on decision making models and their application using diverse data sources for high quality and safe care delivery. Decision support tools used in various health settings will be explored.  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6795 - i-LEAD Administrative Internship (3 Credits)**

The internship provides students the opportunity to apply and evaluate systems and leadership theories, concepts and skills in the work setting under the supervision of a preceptor. The course is designed as a capstone experience to integrate and apply competencies  
Grading Basis: Letter Grade  
Typically Offered: Fall, Spring, Summer.

**NURS 6796 - Executive Leadership and Organizational Systems (3 Credits)**

This course examines attributes and issues associated with high-level administrative roles in healthcare organizations. It explores facets of leadership and leadership development in teams and organizations and processes by which people affect change in a variety of roles and situation.  
Grading Basis: Letter Grade  
Typically Offered: Spring.



**NURS 6800 - Leadership, Financial Management and Innovation (3 Credits)**

Systems and leadership theory plus introductory financial concepts knowledge scaffolds to application in construction of a business plan for innovative nursing program/practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6819 - AGPCNP Primary Hlth Care I: Hlth Promotion & Prevention (3 Credits)**

This course provides content on health promotion and health maintenance of adults in primary care. Evidence-based guidelines for health promotion and tools for assessment and management of the individual, family and community. Prerequisites: NURS 6243, NURS 6222, NURS 6761; Co-requisite: NURS 5971

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6829 - Primary Care II: Diagnosis and Management I (3 Credits)**

This course covers diagnosis, management, and competent determinations of care related to acute and chronic health alterations in the adult/geriatric primary care patient. Pre-requisite: NURS 6243, NURS 6222, NURS 6761, NURS 6818. Co-requisite NURS 5972

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6836 - Special Topics (0.5-6 Credits)**

This course is a special topic selected each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 12.

**NURS 6839 - Primary Care III: Diagnosis and Management II (3 Credits)**

This course is a continuation of diagnosis, management, and competent determinations of care related to acute and chronic health alterations in the adult/geriatric primary care patient. Requisite: NURS 6222, NURS 6243, NURS 6761, NURS 5971, NURS 6829, NURS 6818, NURS 5971, NURS 5972, NURS 5973

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 6849 - PC IV: DM III Care for Complex Older Adult (3 Credits)**

This course focuses on care of the older adult through examination of complex health alterations. Health optimization of the older adult; palliative and end of life care, social and political factors affecting this age group are also examined. Pre-requisites: NURS 6222, NURS 6243, NURS 6761, NURS 6839 Co-requisite: NURS 5973

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6850 - NMW Primary Care of Women (2 Credits)**

Facilitates development of critical thinking necessary for the application of midwifery management in primary care for women; routine screening and health promotion, diagnosis & management, and collaborative management or referral of acute minor illnesses and chronic disease management. Prerequisites: NURS 6222, NURS 6243, NURS 6761

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6859 - Advanced Professional Role (2 Credits)**

This course explores the professional aspects and challenges associated with advanced practice nursing including professional issues and transition to the advanced nursing role. Contemporary topics include role acquisition in intra- and interdisciplinary practice, theory/evidence based practice, and legal/ethical issues.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6882 - Foundational Clinical Skills Adv Pract NP (1 Credit)**

This course applies advanced practice competencies associated with procedural skills in a hands on format.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 6940 - Candidate for Degree (1 Credit)**

Registration only if not enrolled in other coursework in the semester in which he/she takes MS comprehensive exams.

Grading Basis: Pass/Fail Only

Additional Information: Report as Full Time.

**NURS 6950 - Synthesis/Integration/Transition into FNP Practice (2 Credits)**

This course will synthesize and integrate learning from the FNP program and prepare the student for transition into clinical practice. Students will plan how to support the FNP role and analyze interprofessional leadership opportunities to improve health outcomes. Pre/Co-requisite: NURS 5934; Prerequisite: NURS 6529.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 6973 - State of Science: Healthcare Systems (3 Credits)**

Course focuses on the state of the science of evidence-based practice and environment of health-care and its effect on organizational, staff, and patient outcomes. The manager's role in creating/enhancing the environment will be emphasized based upon research. Prerequisite: NURS 6790 Systems Theory

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**NURS 7001 - Diversity of Scientific Perspectives (1 Credit)**

Beginning exploration of focal emphasis areas biobehavioral science, caring science and healthcare systems in a seminar format. Students will be introduced to the three focal emphasis areas and explore applications to knowledge development in their area of substantive interest.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7101 - Metatheory in Nursing I (3 Credits)**

This course examines the nature of nursing as an academic discipline, emphasizing varying perspectives of nursing's phenomena of interest, history of knowledge development, interrelationships between philosophies of science and nursing knowledge, and methods of theory analysis and evaluation.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7102 - Metatheory in Nursing II (3 Credits)**

This course focuses on processes of knowledge development in nursing, including traditional and non-traditional methods. Application of a selected theory development method to a student-selected nursing phenomenon is required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7200 - Writing Discipline for Scientific Publishing (3 Credits)**

Concentrating on clear, logical thinking as the most important element in manuscript communication, students will develop the discipline of writing focusing on writing roadmaps, precision/concision of words and common writing pitfalls in the context of expectations for scientific publishing.

Prerequisite: Completion of first-year PhD coursework or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall.



**NURS 7220 - Role of the Scientist I (3 Credits)**

This seminar course is designed to promote beginning professional role formation as PhD students transition to the role of the scientist. Students will develop a research question and specific aims.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7221 - Role of the Scientist II (2 Credits)**

This seminar course builds upon Role of the Scientist I by emphasizing role development through scientific grant writing. Prerequisite: NURS 7220.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7350 - Research Practicum (3 Credits)**

Students gain hands-on research experience by leveraging various opportunities within the college, campus and other academic environments. This experience includes observing and contributing to research steps and team interaction. This will enrich students' understanding of research process and provide hands-on experience.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7440 - Measurement for Nursing Science (3 Credits)**

Course provides a knowledge base in the process of instrumentation to measure psychosocial and behavioral phenomena. Techniques to evaluate existing instruments will be followed by methods for designing and testing the psychometric properties of new instruments.

Grading Basis: Letter Grade

**NURS 7504 - Caring Science Seminar I: Introduction to Caring Science (1 Credit)**

This course focuses on the evolution of caring science research and other disciplines in nursing with an emphasis on Dr. Jean Watson's perspective. How theoretical-scholarship in caring science and multiple theories of caring are used in research are critiqued and examined.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7506 - Diverse Theories of Care: Paradigms of Human Caring (3 Credits)**

This course explores caring science and unitary views of consciousness in relation to universal human experiences and vicissitudes of existence. Different theories of caring examine the diversity and converging directions of a unitary transformative view of evolved humans.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7508 - CS as Transdisciplinary Domain for Health Science Educ (3 Credits)**

This course explores the placement of caring knowledge within a trans-disciplinary matrix for nursing science and related fields of health science and education. It examines diverse concepts of caring in the larger field of health science. Original expanded title: Caring Science as Transdisciplinary Domain for Health Science Education, Practice and Research

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7510 - Nursing Science Inquiry Methods (4 Credits)**

An introduction to qualitative and quantitative methods of inquiry to guide the selection of methods for knowledge development in nursing science. Emphasis on the integration of midrange theory, literature analysis and synthesis for development of researchable questions and methods selection. Prereq: Admission to the program and first semester required courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7511 - Philosophical Underpinnings Caring Science (3 Credits)**

This course focuses on the analysis of caring science from its philosophical traditions. Historical and contemporary philosophical scholarship will be critiqued and examined. NURS 7504, NURS 7519

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7519 - Exploring Caring Science Questions (1 Credit)**

This course focuses on the latest development and analysis of caring science research and its evolution. Caring Science questions and methodologies related to students' research questions are examined.

Prerequisite: NURS 7101, NURS 7201, NURS 7504

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7621 - Advanced Qualitative Research Design, Methods & Analysis I (3 Credits)**

A range of qualitative research approaches are critically analyzed exploring contemporary qualitative designs and underlying theoretical models. Students will develop a qualitative research proposal appropriate for student's doctoral research questions and consistent with IRB requirements. Prereq: Completion of required coursework for Year 1 and Summer Year 2.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7622 - Advanced Qualitative Research Design, Methods & Analysis II (3 Credits)**

This course provides students with opportunities to apply new skills and knowledge related to their interests, including critique and dissemination of qualitative reports. Prereq: Completion of required courses for Year 1 and Summer Year 2 and Fall Year 2.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7631 - Advanced Quantitative Research Design, Methods & Analysis I (3 Credits)**

In-depth study of principles foundational to quantitative research including causation, sources of error, measurement, and the focal unit, and internal and external validity; experimental and quasi-experimental designs; and methods of statistical analysis for these designs. Prereq: Completion of required courses for Year 1 and Summer semester of Year 2.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7632 - Advanced quantitative Research Design, Methods & Analysis II (3 Credits)**

In-depth study of principles foundational to quantitative research including causation, prediction, explanation, and power; descriptive and exploratory research designs; methods of statistical analysis for these designed; and meta-analysis. Prereq: Required courses for: Year 1, Summer Year 2 and Fall Year 2.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7720 - Health Care Systems I: Evaluating Health Care Delivery System (3 Credits)**

Focuses on descriptive/evaluation of health care delivery across the continuum of care and integration of nursing care with health care delivery. HCS middle-range theories for descriptive/evaluative research are examined. Advanced methods for research at the system level are addressed. Prereq: NURS 7801; NURS 7802NURS 7803, NURS 7101; NURS 7102; NURS 7201, NURS 7510

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7730 - Health Care Systems II: Changing Health Care Delivery Systems (3 Credits)**

Focuses on improving health care delivery across the continuum of care. Changing theories and theoretical grounding for system level interventions are analyzed. Application includes advanced methods/designs for assessing the effects of change. The information technology/care delivery interface is examined. Prereq: All first year and summer/fall second year required courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7740 - BBS I: Intrapersonal Determinants & Phenomena (3 Credits)**

This course focuses on the intrapersonal biobehavioral determinants that underlie health-related phenomena, including psychosocial, behavioral, and biological mechanisms and processes. Prereq: First year PhD required courses for the Biobehavioral Science focus.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7750 - BBS II: Interpersonal Phenomena & Determinants (3 Credits)**

This course focuses on the interpersonal phenomena that arise from interrelationships among psychosocial, behavioral, biological and environmental determinants of health states across the lifespan.

Prereq: First year and second year summer PhD required courses for the Biobehavioral Science focus.

Grading Basis: Letter Grade

Typically Offered: Fall.

**NURS 7760 - Interventions & Outcomes in Biobehavioral Research (3 Credits)**

Introduction to conceptualization, development, and testing of biobehavioral interventions; identification and measurement of biobehavioral outcomes. Attention is also given to the design of clinical trials to test biobehavioral interventions, questions of efficacy and effectiveness, and issues of implementation and fidelity. Prereq: Required courses for Year 1, summer Year 2, Fall Year 2.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7802 - HCS Seminar II: Developing Systems Questions (1 Credit)**

Development of key questions in the field of health care systems research will be discussed in seminar format. Students will develop research questions related to their own area of research interest. Prereq: Completion of required first semester courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7803 - Health Care Systems: State of the Science (3 Credits)**

Interrogation of extant HCS literature using integrative and systematic frameworks to review the state of the science in student's area of interest. Identification of state of the science and appropriate research methods to address the gaps in knowledge. Prereq: All required first year courses.

Grading Basis: Letter Grade

Typically Offered: Summer.

**NURS 7822 - Developing Biobehavioral Research Problem & Questions (1 Credit)**

Development of key questions in the field of biobehavioral research will be discussed in seminar format. Students will develop a problem statement and research questions related to their own area of research interest. Prereq: Completion of first semester required courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

**NURS 7836 - Special Topics (1-4 Credits)**

This course is a special topic selected each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 15.

**NURS 7856 - Independent Study (1-4 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

**NURS 7862 - Best Practices to Enhance Teaching and Learning (3 Credits)**

Exploration of best practices in evidence-based and theory-guided teaching and learning. Analysis of contemporary learning principles and learning styles. Implementation of a variety of high impact strategies for learner engagement across settings, with emphasis on selecting and using teaching technologies. Requisites: Graduate standing or permission of instructor

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 7863 - Immersion in Nursing Education Practicum (3 Credits)**

Implement best practices in teaching and learning, curriculum and course design and continuous improvement, learning assessment and evaluation methods with a faculty mentor. Experiences address individual learning needs relevant to the nurse educator role across teaching modalities and learning environments. Requisite: Graduate standing or permission of instructor. Previous teaching experience or coursework relevant to teaching and learning strategies, curriculum design and evaluation, and/or adult learning theory is recommended.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 7864 - Evolving Nursing Educ Sci and Nurse Educator Roles (3 Credits)**

Exploration of advances in nursing education science and impact of research on pedagogy, roles, and competencies necessary to prepare a well-qualified diverse nursing workforce across dynamic healthcare systems and environments. Emphasis is on the scholarship of teaching and professional development. Requisite: Graduate standing or permission of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**NURS 7865 - Outcome-focused Curriculum and Program Evaluation (3 Credits)**  
 Exploration of curriculum design and course developments as foundations for achievement of desired learning and program outcomes. Emphasis is on the connection between design and evidence of performance to assess individual learning, course and program effectiveness and continuous quality improvement. Requisite: Graduate Standing or permission of instructor.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall, Spring, Summer.

**NURS 8000 - DNP Project Variable Hours Course (1-5 Credits)**  
 Students who need greater than 540 clinical hours toward DNP Project take this course. Faculty advisor provides oversight to student. Credit hours are variable depending on individual student needs. Students log DNP Project hours in InPlace. Prerequisite: NURS 6070, NURS 6009, NURS 6286, NURS 6109  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 12.  
 Typically Offered: Spring.

**NURS 8020 - DNP Project Preparation (1 Credit)**  
 Doctor of nursing practice students begin to plan their projects by incorporating ethical and regulatory oversight considerations of practice, population, or system readiness for enhancement and relevant evidence and/or interventions related to the DNP project.  
 Grading Basis: Letter Grade  
 Typically Offered: Fall.

**NURS 8030 - DNP Project I (4 Credits)**  
 In a clinically focused experience, Doctor of Nursing Practice students work on scholarly projects which incorporate theoretical models, various strategies, and compliance with regulatory oversight. Evidence evaluation and feedback incorporation are highlighted. Pre-requisite: NURS 8020  
 Grading Basis: Letter Grade  
 Typically Offered: Spring.

**NURS 8035 - DNP Seminar 1 (1 Credit)**  
 Students will develop a protocol proposal for their DNP project that will be reviewed for ethical and regulatory oversight. A guiding framework will be used to plan organizational change in a specific practice setting or system. Pre-requisite: NURS 8020, Co-requisite NURS 8030  
 Grading Basis: Letter Grade  
 Typically Offered: Spring.

**NURS 8040 - DNP Project Course II (3 Credits)**  
 In a clinically focused experience, Doctor of Nursing Practice students will begin project implementation, data collection, data analysis, and dissemination of project findings. Emphasis is placed on theoretical models, DNP role advocacy, and leading interdisciplinary teams. Pre-req: NURS 6109, NURS 6009, NURS 6286, NURS 6070 NURS 8030, NURS 8035  
 CO: NURS 8045  
 Grading Basis: Letter Grade  
 Typically Offered: Summer.

**NURS 8045 - DNP Seminar 2 (1 Credit)**  
 Students will develop and implement small tests of change for their DNP project. Attention will be paid to integrating evaluation strategies into the students' specific practice setting or system. Pre: NURS 6109, NURS 6009, NURS 6286, NURS 6070, NURS 8020, NURS 8030, NURS 8035  
 CO: NURS 8040  
 Grading Basis: Letter Grade  
 Typically Offered: Summer.

**NURS 8050 - DNP Project III (4 Credits)**  
 Doctor of Nursing Practice students will continue project implementation, conclude data collection and complete data analysis in this final course. Students will disseminate project findings by completing a scholarly paper and an oral presentation. An e- portfolio will also be completed.  
 Requisite: NURS 8040, NURS 8045  
 Grading Basis: Letter Grade  
 Typically Offered: Fall.

**NURS 8856 - Independent Study (DNP) (1-6 Credits)**  
 Grading Basis: Letter Grade  
 Repeatable. Max Credits: 6.  
 Typically Offered: Fall, Spring, Summer.

**NURS 8990 - Dissertation (1-10 Credits)**  
 Student MUST register for section number listed for dissertation chairperson. Prereq: Completion of majority of doctoral course work.  
 Grading Basis: Letter Grade with IP  
 Repeatable. Max Credits: 40.  
 Additional Information: Report as Full Time.

## Obstetrics & Gynecology (OBGY)

**OBGY 6001 - Career Elective in Obstetrics and Gynecology (1 Credit)**  
 Students will attend 2-3 OBGYN outpatient clinics held at Denver Health on Thursdays afternoons and one half or full day in the Denver Health Operating Room. 12.5 hours of observation time split between OR, and clinic over a semester. One meeting with the course director to discuss the student interest and experience. Phase I and II students can enroll in course  
 Grading Basis: Pass/Fail with IP  
 Repeatable. Max Credits: 3.  
 Typically Offered: Fall, Spring, Summer.

**OBGY 8000 - General Obstetrics AI (8 Credits)**  
 4 weeks. Max:1. This Sub-I course meets the UC SOM requirement for graduation. Offered at DHMC only. Includes experience in outpatient high risk obstetrics, inpatient antepartum, intrapartum, postpartum and family planning. Student works under clinical supervision of residents and attending staff.  
 Grading Basis: Medical School  
 Typically Offered: Fall, Spring, Summer.

**OBGY 8001 - General Gynecology AI (8 Credits)**  
 4 wks. Max:1. This Sub-I course meets the UC SOM requirement for graduation. Offered at DHMC only. Includes experience in inpatient/outpatient gynecology, family planning, operative gynecology and postoperative care. Student works under supervision of residents and attending staff.  
 Grading Basis: Medical School

**OBGY 8004 - High Risk Maternal/Fet AI (8 Credits)**  
 4 wks. Max:1. Intensive exposure to problems of high-risk obstetrics. Student will work under supervision of the Maternal-Fetal Medicine Staff. Student will attend high-risk clinics, have primary responsibility for patient care in antepartum unit under supervision of chief resident.  
 Grading Basis: Medical School  
 Typically Offered: Fall, Spring, Summer.

**OBGY 8005 - Gynecologic Oncology Acting Internship (8-12 Credits)**  
4 or 6 wks. Max:1. Student will attend GYN oncology clinics and scrub on all GYN oncology surgery, functioning as acting intern. All pathology will be reviewed with GYN oncologist. Literature review on selected subject required. Clinical research opportunities available.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**OBGY 8009 - GYN Subspecialties (8-12 Credits)**

4 or 6 wks. Max:1. Student attends outpatient gynecologic diagnostic clinics, colposcopy and laser surgery, urogynecology, urodynamics, hysteroscopy, and pelvic pain. Student works under supervision of Gyn staff. Directed study and clinical research. Attendance at colposcopy biopsy review conference, preoperative and Gyn teaching conferences required.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**OBGY 8010 - Reproductive/Infertility (4-8 Credits)**

Max:1. Student will attend clinics, scrub on surgical procedures, in vitro fertilization procedures, and embryo transfers. The student will participate in ultrasounds, procedures and clinical consultations. The student will present a brief lecture to the division at the conclusion of the rotation.

Grading Basis: Medical School

**OBGY 8011 - Family Planning (8 Credits)**

4 wks. Max:1. This elective is designed to make the student proficient in providing family planning services: contraception, options counseling and termination procedures. Substantial emphasis will also be placed on participation in ongoing research activities of the division. Prereq: Passing grade in third year Women and Newborns clerkship (IDPT 7030). Grading Basis: Medical School

**OBGY 8012 - UH Gynecology AI (8 Credits)**

4 wks. Max:1. This course can meet Sub-I qualifications. This course is designed to allow students to become integrally involved with the general gynecology service. Student will partake in all clinical activities of the service, including operative procedures, management of inpatient gynecology conditions, and emergency room consultation. Prereq: Passing grade in third year Women and Newborns Rotation (IDPT 7030).

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**OBGY 8015 - Group Prenatal Care: Pregnancy & Parenting Partners (4 Credits)**

Students will follow a cohort of women through a group prenatal and postpartum care program. Students will work with Certified Nurse Midwives (CNM) and group facilitators to provide prenatal exams and to facilitate educational sessions in an underserved population.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**OBGY 8100 - OBGY Elective Away (4-8 Credits)**

This Obstetrics/Gynecology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**OBGY 8600 - Research in OBGYN (4-24 Credits)**

2-12 wks. Prereq: Departmental approval must be obtained and all arrangements must be made one semester in advance. The student must receive prior approval from the Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**OBGY 8630 - OBGY Research Away (8-16 Credits)**

This Obstetrics/Gynecology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Oncology (DSON)

**DSON 6610 - Oral Pathology 1 (0.1-5 Credits)**

This course is a comprehensive review of the fundamental mechanisms and general principles of oral pathology, including developmental disturbances of oral and para-oral structures, benign and malignant tumors and cysts.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSON 6612 - Oral Pathology 2 (0.1-5 Credits)**

This course is a continuation of Oral Pathology 1.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSON 7755 - Clinical Oncology (0.1-5 Credits)**

One week course including lectures, seminars, tumor boards, surgery rounds, and radiation therapy conferences dealing with prevention, diagnosis, and treatment of head and neck neoplasia.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## Operative Dentistry (DSOP)

**DSOP 5504 - Principles of Operative Dentistry Direct Restoration I (0.1-5 Credits)**

This course is designed to teach students the principles of operative dentistry and the direct restoration of teeth from a problem specific approach.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Spring.

**DSOP 5505 - Principles of Operative Dentistry - Direct Restoration 1 Lab (0.1-5 Credits)**

This course integrates the principles of operative dentistry and direct restoration in a case-based laboratory environment.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSOP 5506 - Principles of Operative Dentistry - Direct Restorations 2 (0.1-5 Credits)**

Continuation of Principles of Operative Dentistry - Direct Restoration 1. Designed to teach operative dentistry from a problem specific approach.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.



DSOP 5507 - Principles of Operative Dentistry - Direct Restorations 2 Lab (0.1-5 Credits)

Continuation of Principles of Operative Dentistry - Direct Restoration 1 Lab. Designed to teach operative dentistry from a problem specific approach.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

DSOP 6031 - Clinical Operative Dentistry 1 (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

DSOP 6600 - Pre-Clinical Operative Dentistry Workshop (0.1-5 Credits)

Practical restorative exercises in extracted natural teeth.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

DSOP 6610 - Seminars in Restorative Dentistry (0.1-5 Credits)

This course will present topics on operative dentistry relative to clinic patient care. Current materials and techniques as well as a review of fundamental concepts of operative dentistry will be taught.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

DSOP 7011 - Clinical Operative Dentistry 2 (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSOP 7022 - Clinical Operative Dentistry 3 (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSOP 7033 - Clinical Operative Dentistry 4 (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

DSOP 7757 - Clinical Operative Dentistry (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 22.

Typically Offered: Spring.

DSOP 8011 - Clinical Operative Dentistry 5 (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

DSOP 8022 - Clinical Operative Dentistry 6 (0.1-5 Credits)

Clinical rotation in operative dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## Ophthalmology (OPHT)

OPHT 6610 - Biology of the Eye (1 Credit)

This course introduces contemporary topics in vision science and ophthalmology. It integrates basic science and clinical science of diseases that affect the eye. Available to Phase I-II students.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

OPHT 8000 - Advanced Ophthalmology (4-8 Credits)

4 wks. Max:1. This elective is designed for senior students seriously considering a career in Ophthalmology. Students rotate at each hospital with in-depth exposure to each subspecialty area. Students are expected to participate with in- and out-patient care, call activities, teaching rounds, and conferences.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

OPHT 8100 - OPHT Elective Away (4-8 Credits)

This Ophthalmology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks. Departmental approval required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

OPHT 8600 - Research Ophthalmology (4-24 Credits)

2-12 wks. A final written evaluation must be mailed to Course Director who will assign the final grade. Prereq: Arrangements must be made one month in advance. Departmental approval required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

OPHT 8630 - OPHT Research Away (4-16 Credits)

This Ophthalmology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Oral Diagnosis (DSOD)

DSOD 5500 - Assessment of the Dental Patient (0.1-0.7 Credits)

Designed to introduce the student to the problem-oriented dental record and to a systems approach to the collection of health data. Includes both lecture and clinical phases.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

DSOD 5502 - Oral Radiology (0.1-5 Credits)

Designed to introduce the students to basic radiology and to provide them with the necessary practical skills in preparation for clinical dentistry. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSOD 5503 - Oral Radiology Laboratory (0.1-5 Credits)

The laboratory is designed to provide students with the necessary practical skills in preparation for clinical dentistry. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

DSOD 6031 - Clinical Oral Diagnosis 1 (0.1-5 Credits)

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.



**DSOD 7011 - Clinical Oral Diagnosis 2 (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSOD 7022 - Clinical Oral Diagnosis 3 (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSOD 7033 - Clinical Oral Diagnosis 4 (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSOD 7715 - Diagnosis of Orofacial Lesions (0.1-5 Credits)**

Presentations of oral and maxillofacial lesions and anomalies from the comprehensive patient care program will be made by the students and critiqued by the faculty. Clinical history, detailed description, differential diagnosis and treatment/prognosis will form the basis of this interactive discussion.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSOD 7724 - Diagnostic Radiology (0.1-5 Credits)**

This course in radiographic interpretation is for 3rd year dental and 2nd year ISP students and builds upon Oral Path 1 and 2. It includes radiographic interpretation, pathophysiology and management of osseous disorders of the jaw and TMJ.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSOD 8010 - Clinical Oral Radiology (0.1-5 Credits)**

The purpose of this course is to provide students with experience in exposing radiographs and by completing written interpretations of all radiographs. Evaluation will be on a pass/fail basis. Requirements: Department consent

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSOD 8011 - Clinical Oral Diagnosis 5 (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSOD 8022 - Clinical Oral Diagnosis 6 (0.1-5 Credits)**

Clinical rotation in oral diagnosis.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## Oral Surgery (DSOS)

**DSOS 6031 - Oral and Maxillofacial Surgery 1 (0.1-5 Credits)**

The diagnosis and treatment of oral and maxillofacial surgical problems including techniques for extraction of teeth alveoplasty, biopsy, management of infection, treatment of maxillary and mandibular fractures, and suturing techniques.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSOS 7011 - Oral and Maxillofacial Surgery 2 (0.1-5 Credits)**

The diagnosis and treatment of oral and maxillofacial surgical problems including techniques for extraction of teeth alveoplasty, biopsy, management of infection, treatment of maxillary and mandibular fractures, and suturing techniques.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSOS 8011 - Clinical Oral Maxillofacial Surgery 1 (0.1-5 Credits)**

This is a clinical oral surgery experience including routine and surgical removal of erupted and impacted teeth and use of intravenous sedation techniques.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

## Orthodontics (DSOT)

**DSOT 6610 - Orthodontics 1 (0.1-5 Credits)**

Early physical and emotional development of the child is presented, emphasizing prenatal and neonatal influences on the craniofacial complex. The etiology and classification of malocclusion along with the development of disturbances of hard and soft tissues are introduced.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSOT 7021 - Clinical Orthodontics 1 (0.1-5 Credits)**

Clinical rotation in orthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSOT 7720 - Orthodontics 2 (0.1-5 Credits)**

Covers Cephalometric analysis laboratory, fabrication of fixed and removable appliances for interceptive and corrective orthodontic treatment. Utilizes acquired knowledge from the previous orthodontic course to synthesize a general and orthodontic diagnosis; and preventive, restorative, and orthodontic treatment plan.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

## Orthodontics Residency (DSOR)

**DSOR 5101 - Orthodontics 101 - Boot Camp (4.2 Credits)**

This post-doctoral course is an intense review of the breadth and scope of orthodontics including growth and development and the different clinical orthodontic modalities.

Grading Basis: Letter Grade

**DSOR 5102 - Dentofacial Growth and Development 1 (1.8 Credits)**

This post-doctoral course is an in-depth study of human growth and development that includes basic embryology of the head and neck, growth theories and facial and dental arch changes throughout human life.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5103 - Diagnosis and Treatment Planning 1 (1.8 Credits)**

This post-doctoral course is an in-depth study of advanced orthodontic data gathering and interpretation as used in orthodontic diagnosis and treatment planning.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5104 - Biomechanics 1 (3.5 Credits)**

This post-doctoral course is an in-depth, advanced study of orthodontic biomechanical systems and their effect on the craniofacial and dental structures. Included in this course are the protocols required to treat both skeletal and dental malocclusions.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5105 - Research Methodology and Biostatistics 1 (1.8 Credits)**

This post-doctoral course is an in-depth study of scientific research methods, study design and organization, data gathering, and the biostatistical tools required to analyze the results of a study.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5107 - Treatment Planning 1 (3.5 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Post-doctoral students are required to present patient diagnoses and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5108 - Current Literature Review 1 (0.9 Credits)**

Course is the study, analysis and discussion of journal articles and topics that are prominent in orthodontics within the previous year. Post-doctoral students critically review and analyze the articles to determine advances in the art and science of orthodontics.

Grading Basis: Letter Grade

**DSOR 5111 - History of Orthodontics & Dentofacial Orthopedics (0.9 Credits)**

This post-doctoral course is an in-depth study of the development of orthodontic treatment and of orthodontics as a specialty, including the study of prominent figures that played a part in specialty and treatment development.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5202 - Dentofacial Growth and Development 2 (2.5 Credits)**

This post-doctoral course is an in-depth study of human growth and development that includes the effects of treatment on growth and development. Prereq: DSOR 5102

Grading Basis: Letter Grade

**DSOR 5203 - Diagnosis and Treatment Planning 2 (2.5 Credits)**

This post-doctoral course is a continuation of the in-depth study of advanced orthodontic data gathering and interpretation as used in orthodontic diagnosis and treatment planning. Prereq: DSOR 5103.

Grading Basis: Letter Grade

**DSOR 5204 - Biomechanics 2 (3.8 Credits)**

This post-doctoral course is an in-depth, advanced study of orthodontic biomechanical systems and their effect on the craniofacial and dental structures. Included in this course are the protocols required to treat both skeletal and dental malocclusions. Prereq: DSOR 5104.

Grading Basis: Letter Grade

**DSOR 5205 - Research Methodology & Biostatistics 2 (2.5 Credits)**

This post-doctoral course is an in-depth study of scientific research methods, study design and organization, data gathering, and the biostatistical tools required to analyze the results of the study. Prereq: DSOR 5105.

Grading Basis: Letter Grade

**DSOR 5207 - Treatment Planning 2 (5 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Post-doctoral students are required to present patient diagnoses and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students. Prereq: DSOR 5107.

Grading Basis: Letter Grade

**DSOR 5208 - Current Literature Review 2 (1.3 Credits)**

Course is the study, analysis and discussion of journal articles and topics that are prominent in orthodontics within the previous year. Post-doctoral students critically review and analyze the articles to determine advances in the art and science of orthodontics. Prereq: DSOR 5108.

Grading Basis: Letter Grade

**DSOR 5211 - Treatment in Preadolescent Children (1.8 Credits)**

This post-doctoral course is a study of the orthodontic and pediatric care of the preadolescent patient, to include preventative and Phase 1 patient care.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DSOR 5302 - Implants in the Orthodontic Patient (1 Credit)**

The goals of this course are (1) to familiarize the students with the history, evolution, design, placement, and clinical use of TADs, (2) to leave this program with an understanding of how to incorporate TADs into treatment planning, not just as a bailout mechanism but incorporation of the TADS into the treatment plan at its inception.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DSOR 5304 - Biomechanics 3 (1.8 Credits)**

This post-doctoral course is an in-depth, advanced study of orthodontic biomechanical systems and their effect on the craniofacial and dental structures. Included in this course are the protocols required to treat both skeletal and dental malocclusions. Prereq: DSOR 5104, DSOR 5204.

Grading Basis: Letter Grade

**DSOR 5306 - Dent/Craniofacial Anomalies (0.7 Credits)**

Grading Basis: Letter Grade

**DSOR 5307 - Treatment Planning 3 (3.5 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Post-doctoral students are required to present patient diagnosis and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students. Prereq: DSOR 5107, DSOR 5207.

Grading Basis: Letter Grade

**DSOR 5311 - Scientific Writing and Evaluation (1.5 Credits)**

This post-doctoral course is an in-depth study of scientific writing to prepare the student to evaluate the literature as well as to prepare a scientific manuscript for publication.

Grading Basis: Letter Grade

**DSOR 5321 - Orthognathic Surgical Treatment (2.5 Credits)**

This post-doctoral course is a study of the orthognathic surgical options and treatment of patients, including distraction osteogenesis and other advances in surgical techniques.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 5331 - Management of the TMJ Patient (1.8 Credits)**

This post-doctoral course is an advanced course in diagnosing and managing the patient with temporomandibular joint symptoms and dysfunction.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DSOR 5341 - Fundamentals of Teaching (0.9 Credits)**

This post-doctoral course teaches the student the basics of clinical and didactic teaching to enable the student to successfully participate in the orthodontic instruction of predoctoral students and to interact and teach their non-orthodontist colleagues on completion of the program.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DSOR 5344 - Advanced Radiology and Radiographic Interpretation (1.8 Credits)**

This graduate course in dentistry in oral and maxillofacial radiology includes lectures and case studies in radiation physics, radiation biology, radiation hygiene and radiographic techniques. In addition, this course will provide information on advanced imaging modalities and interpretive skills.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSOR 5841 - Research 1 (Independent Study) (0.9 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5842 - Research 2 (0.8 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DSOR 5841.

Grading Basis: Letter Grade

**DSOR 5843 - Research 3 (5 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DSOR 5841, DSOR 5842.

Grading Basis: Letter Grade

**DSOR 5931 - Clinical Orthodontics 1 (6.8 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient patient care.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 5932 - Clinical Orthodontics 2 (9.5 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient clinical patient care. Prereq: DSOR 5931.

Grading Basis: Letter Grade

**DSOR 5933 - Clinical Orthodontics 3 (6.4 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient clinical patient care. Prereq: DSOR 5931, DSOR 5932.

Grading Basis: Letter Grade

**DSOR 6107 - Treatment Planning 4 (4 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Postdoctoral students are required to present patient diagnoses and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students. Prereq: DSOR 5107, DSOR 5207, DSOR 5307.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 6108 - Current Literature Review 4 (1 Credit)**

Course is the study, analysis and discussion of journal articles and topics that are prominent in orthodontics within the previous year. Post-doctoral students critically review and analyze the articles to determine advances in the art and science of orthodontics. Prereq: DSOR 5108, DSOR 5208, DSOR 5308.

Grading Basis: Letter Grade

**DSOR 6111 - Periodontic/Orthodontic Treatment (1 Credit)**

This post-doctoral course is a study of the interdisciplinary care of the patient with periodontal and orthodontic needs and includes a review of the literature in conjunction with a periodontist.

Grading Basis: Letter Grade

**DSOR 6201 - Ethics & Practice Management (2 Credits)**

This graduate course in dentistry is an in-depth study of ethics, practice management, and jurisprudence as it relates to clinical practice. The course includes advanced study and lecture in practice financial and management areas with specific experiences varying with the different specialty areas.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 6206 - Dent/Craniofacial Anomalies (1 Credit)**

This post-doctoral course is a study of dental and craniofacial anomalies and the orthodontic and surgical treatment of patients. This includes both seminars, case-based and case-presentation study. Prereq: DSOR 5106, DSOR 5206, DSOR 5306, DSOR 6106.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 6207 - Treatment Planning 5 (5 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Post-doctoral students are required to present patient diagnoses and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students. Prereq: DSOR 5107, DSOR 5207, DSOR 5307, DSOR 6107.

Grading Basis: Letter Grade

**DSOR 6208 - Current Literature Review 5 (1.3 Credits)**

Course is the study, analysis and discussion of journal articles and topics that are prominent in orthodontics within the previous year. Post-doctoral students critically review and analyze the articles to determine advances in the art and science of orthodontics. Prereq: DSOR 5108, DSOR 5208, DSOR 5308, DSOR 6108.

Grading Basis: Letter Grade

**DSOR 6209 - Surgical Anatomy & Osteology (1.1 Credits)**

This course emphasizes head and neck anatomy that is related to surgical procedures treatment planned/performed by dental specialists. Surgical complications related to anatomy will be covered. A prosection of human cadavers will be reviewed with emphasis on surgical anatomy and techniques for sinus augmentation.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 6844 - Research 4 (6.5 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DSOR 5841, DSOR 5842, DSOR 5843.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 6845 - Research 5 (2.4 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DSOR 5841, DSOR 5842, DSOR 5843, DSOR 6844.

Grading Basis: Letter Grade

**DSOR 6934 - Clinical Orthodontics 4 (8.1 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient clinical patient care. Prereq: DSOR 5931, DSOR 5932, DSOR 5933.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 6935 - Clinical Orthodontics 5 (11.1 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontics to provide high quality and efficient clinical patient care. Prereq: DSOR 5931, DSOR 5932, DSOR 5933, DSOR 6934.

Grading Basis: Letter Grade

**DSOR 6936 - Review for American Board Examination (1.2 Credits)**

This postgraduate course in dentistry is an advanced review course in published orthodontic research studies and techniques in preparation for taking the written portion of the American Board of Orthodontics written examination. Restrictions: Successful completion of Year 1 of the postgraduate Program in Orthodontics.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 7106 - Dent/Craniofacial Anomal (0.7 Credits)**

Grading Basis: Letter Grade

**DSOR 7107 - Treatment Planning 6 (3.5 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Post-doctoral students are required to present patient diagnoses and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students. Prereq: DSOR 5107, DSOR 5207, DSOR 5307, DSOR 6107, DSOR 6207.

Grading Basis: Letter Grade with IP

**DSOR 7108 - Current Literature Review 6 (0.9 Credits)**

Course is the study, analysis and discussion of journal articles and topics that are prominent in orthodontics within the previous year. Post-doctoral students critically review and analyze the articles to determine advances in the art and science of orthodontics. Prereq: DSOR 5108, DSOR 5208, DSOR 5308, DSOR 6108, DSOR 6208.

Grading Basis: Letter Grade with IP

**DSOR 7112 - Orthodontic Clinical Teaching 1 (3.5 Credits)**

This post-doctoral course requires the student to teach basic orthodontic diagnostic and treatment techniques to the predoctoral dental student.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DSOR 7207 - Treatment Planning 7 (4 Credits)**

This post-doctoral course is the case-based study of advanced orthodontic treatment planning. Post-doctoral students are required to present patient diagnoses and proposed treatment plans for faculty and student discussion, to include treatment modality presentations by students. Prereq: DSOR 5107, DSOR 5207, DSOR 5307, DSOR 6107, DSOR 6207, DSOR 7107.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 7208 - Current Literature Review 7 (1 Credit)**

Course is the study, analysis and discussion of journal articles and topics that are prominent in orthodontics within the previous year. Post-doctoral students critically review and analyze the articles to determine advances in the art and science of orthodontics. Prereq: DSOR 5108, DSOR 5208, DSOR 5308, DSOR 6108, DSOR 6208, DSOR 7108.

Grading Basis: Letter Grade

**DSOR 7209 - Orthodontic Predoctoral Laboratory Teaching (0.3 Credits)**

This post-doctoral course requires the student to teach basic orthodontic diagnostic and treatment techniques to the predoctoral dental student.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 7212 - Orthodontic Clinical Teaching 2 (4 Credits)**

This post-doctoral course requires the student to teach basic orthodontic diagnostic and treatment techniques to the predoctoral dental student.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 7300 - Current Literature Review 8 (0.5 Credits)**

This postgraduate course in dentistry is an advanced course studying orthodontic literature, concentrating on evidence based orthodontic treatment.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 7307 - Treatment Planning 8 (2 Credits)**

This postgraduate course in dentistry is an advance course studying orthodontic treatment diagnosis, treatment planning and treatment results.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 7311 - Scientific Writing & Evaluation (1.8 Credits)**

This graduate course in dentistry is an in-depth study of scientific writing to prepare the student to evaluate the literature as well as to prepare a scientific manuscript for publication.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSOR 7312 - Orthodontic Clinical Teaching 3 (0.3 Credits)**

This post-doctoral course requires the student to teach basic orthodontic diagnostic and treatment techniques to the pre-doctoral dental student.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 7846 - Research 6 (5 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DSOR 5841, DSOR 5842, DSOR 5843, DSOR 6844, DSOR 6845.

Grading Basis: Letter Grade

**DSOR 7847 - Research 7 (5 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DSOR 5841, DSOR 5842, DSOR 5843, DSOR 6844, DSOR 6845, DSOR 7846.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 7848 - Research 8 (0.6 Credits)**

Postgraduate course study requiring student to select research topic, define research question, do literature search on the topic, organize research project, carry out project, collect and analyze the results and write a publishable manuscript on the project.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 7934 - Clinical Orthodontics 8 (4.7 Credits)**

This postgraduate course involves the advanced treatment orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient clinical patient care.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 7936 - Clinical Orthodontics 6 (7.6 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient clinical patient care. Prereq: DSOR 5931, DSOR 5932, DSOR 5933, DSOR 6934, DSOR 6935.

Grading Basis: Letter Grade

**DSOR 7937 - Clinical Orthodontics 7 (8.7 Credits)**

This post-doctoral course involves the advanced treatment of orthodontic problems and patient care. Supervision is provided by educationally qualified orthodontists to provide high quality and efficient clinical patient care. Prereq: DSOR 5931, DSOR 5932, DSOR 5933, DSOR 6934, DSOR 6935, DSOR 7936.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 7938 - Clinical Problems 1 (0.9 Credits)**

Course is a case-based course to study clinical problems encountered in the practice of orthodontics by the orthodontic specialist. It requires the student to analyze and then present the records of patients who encountered less than ideal results during treatment.

Grading Basis: Letter Grade

**DSOR 7939 - Clinical Problems 2 (1 Credit)**

Course is a case-based course to study clinical problems encountered in the practice of orthodontics by the orthodontic specialist. It requires the student to analyze and then present the records of patients who encountered less than ideal results during treatment.

Grading Basis: Letter Grade

**DSOR 7940 - Orthodontic Retention I (3 Credits)**

Retention techniques, clinical studies in retention, and study of post-treatment changes in orthodontic patients. Prereq: Successfully completing Years 1 and 2 of the postgraduate program in Orthodontics and Dentofacial Orthopedics.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSOR 7941 - Orthodontic Retention II (2 Credits)**

Retention techniques, clinical studies in retention, and study of post-treatment changes in orthodontic patients. Prereq: Successfully completing years 1 and 2 of the postgraduate program in Orthodontics and Dentofacial Orthopedics and successful completion of the DSOR 7940.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DSOR 8317 - Advanced Diagnosis of Oral Lesions (0.08 Credits)**

The course in Advance Diagnosis of oral lesions is a 10 clock hour course that covers the assessment and management of odontogenic cysts and tumors, mucosal soft tissue disease, oral cancer and pre-cancer, and fibro-osseous lesions of the jaws. The course is taught using a clinicopathologic conference and seminar format.

Grading Basis: Letter Grade

Typically Offered: Spring.

## Orthopedics (ORTH)

**ORTH 5005 - Introduction to Orthopedics (1-2 Credits)**

This course consists of 14 weekly one-hour classroom sessions including interactive lectures covering the orthopedic subspecialties, small group discussion and case presentations. An elective reading list is provided. There are also four one-half day shadowing opportunities in the operating room and clinics. Student evaluation is pass/fail by attendance.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**ORTH 6620 - Intro to Orthopedics (1 Credit)**

The course consists of 10 weekly one-hour classroom sessions, elective reading materials, and four one-half day shadowing opportunities in the operating room and clinics. Student evaluation is pass/fail by attendance.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**ORTH 7005 - Orthopedics (8 Credits)**

Orthopedics offers a four-week experience within orthopedics, radiology, physical medicine and physical therapy. The block provides students with the opportunity to develop diagnostic, physical exam and treatment planning skills as related to MSK conditions. This course also provides operative experience for MSK conditions. MSK symptoms are among the most common reasons for visits to physicians' offices. Annually 15-30% of the population seek care for MSK conditions. The presentation of such ailments can be expected to increase with an aging population. Correspondingly, MSK knowledge and competency are integral for successful practices in internal medicine, family practice, emergency medicine, geriatrics and pediatrics. Proficiency with MSK core competencies will enhance the professional growth of all students regardless of expected specialization. Students can expect to achieve a functional aptitude with the four course objectives outlined in the Course Objectives section.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**ORTH 8000 - Orthopaedic Surgery AI (8-12 Credits)**

4 wks. This course can meet Sub-I qualifications. This course is designed as an elective in Orthopedic Surgery for students desiring residency training in Orthopedics or another surgical specialty. The student will function as a "sub intern" on a resident/faculty team in two hospital settings. Restrictions: Offered summer and fall semesters.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**ORTH 8001 - Orthopaedic Primary Care (4-8 Credits)**

2-4 wks. Max:4. This course is designed as an elective in musculo-skeletal medicine in route to a career in primary care or other overlapping field. The focus is on outpatient musculoskeletal medicine. Restrictions: Offered spring semester.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**ORTH 8002 - Ortho Advanced Career Elective (8 Credits)**

This advanced career elective is designed to offer extensive orthopedic medical knowledge and clinical experience to students who have completed ORTH 8000 and are seeking additional orthopedic training that would normally be obtained through elective away rotations. Must have completed ORTH 8000 AI.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

Typically Offered: Fall, Summer.

**ORTH 8005 - Sports Medicine (4-8 Credits)**

Max:1. Course provides clinical experience in musculo-skeletal sports medicine. Students will primarily be based in the CU Sports Medicine Clinic. Opportunities include participation in the clinic, operating room and the training room.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**ORTH 8006 - Alpine Orthopedics (8 Credits)**

Orthopedic elective (4 weeks) designed for students on the path to orthopedic surgery residency who are seeking education and experience in a small mountain community. The course will be based out of Crested Butte, CO which has a high volume of sports injuries. Course will also offer exposure to rural orthopedics in Gunnison & Telluride.

Prerequisite: Must have completed ORTH 8000 and be applying to orthopedic residency

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**ORTH 8007 - Orthopedic Sub-I Prep (4-8 Credits)**

Introduction to Orthopedic Surgery is designed to prepare fourth year medical students for sub-internship rotations in Orthopedic Surgery. Course includes lectures in anatomy, common injuries, treatment plans, and surgical intervention for eight sub-specialties of Orthopedics including: Trauma, Spine, Hand, Pediatrics, Sports, Adult Recon.

Requisite: Students who plan to complete a sub-internship in Orthopedics and who are planning to pursue an orthopedic residency.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Spring.

**ORTH 8050 - Sports Medicine Colorado Springs (4-8 Credits)**

This elective provides the opportunity to learn about the diagnosis and treatment of common sports injuries and sports-related medical conditions by working with orthopedic surgeons, physical therapists, and athletic trainers in the clinic, hospital, schools, and sports training facilities. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**ORTH 8100 - ORTH Elective Away (8 Credits)**

This Orthopedic elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Officer 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**ORTH 8600 - Research in Orthopedics (4-8 Credits)**

4-12 wks. Provides an opportunity to participate in research at the clinical or basic science level. The student should contact the Departmental Office 3-4 months in advance to arrange a meeting with a member of the Orthopaedics faculty to define a project. Prereq: Approval from Course Director and Associate Dean for Student Affairs required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**ORTH 8630 - ORTH Research Away (4-16 Credits)**

This Orthopedic research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

## Otolaryngology (OTOL)

### OTOL 6660 - Otolaryngology Career Elective (1 Credit)

The Career Elective in Otolaryngology - Head & Neck Surgery will provide diverse sub-specialty clinical and operative exposure with physician specialists who diagnose and treat disorders of the ears, nose, throat and related structures of the head and neck.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

### OTOL 8000 - Advanced Otolaryngology (8-16 Credits)

4 or 6 wks. Max:3. Recommended for students considering an ENT career. Offers in-depth clinical and operative exposure. Also useful for those seeking primary care to further hone head and neck exam skills and treatment of ENT pathology.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

### OTOL 8050 - Otolaryngology (ENT) (4 Credits)

Patient care in relation to head and neck - ear, nose and throat ailments. Students will experience both outpatient and inpatient interactions. Will see procedures in clinic as well as in the operating room and participate in rounds at the hospital.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

### OTOL 8100 - OTOL Elective Away (4-8 Credits)

This Otolaryngology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

### OTOL 8600 - Research Otolaryngology (4-24 Credits)

4-12 wks. Objectives: 1) work in supervised environment to gain appreciation for research design, criticism and statistical analysis: 2) complete research project with potential to publish in peer-reviewed journal. Prereq: Prior approval from Associate Dean and course director required to register.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

### OTOL 8630 - OTOL Research Away (4-16 Credits)

This Otolaryngology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Palliative Care (PALC)

### PALC 6110 - Basic Pain Assessment & Management: IDT Care (3 Credits)

This course reviews basic pain pathophysiology, assessment, non-pharmacological interventions, and non-opioid and opioid pharmacological pain management. Integrated with IDT topics related to pain such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### PALC 6111 - Basic Pain Assessment & Management: IDT Care (AHP) (3 Credits)

Offered jointly with PALC 6110; reviews basic pain pathophysiology, assessment, non-pharmacological interventions, and non-opioid & opioid pharmacological pain management. Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### PALC 6120 - Advanced Concepts in Pain Management (3 Credits)

This course focuses on methadone, opioid infusions, interventional pain management, and other complex modalities. This class focuses on ethics and psychosocial issues including pain in the face of addiction and public policy around opioids and REMS. Prerequisites: PALC 6110 and 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

### PALC 6121 - Advanced Concepts in Pain Management (AHP) (3 Credits)

Offered jointly with PALC 6120; Focuses on safe use of methadone, opioid infusions, interventional pain management, and other complex modalities. This class also covers ethics and psycho-social-spiritual issues related to pain, addiction, and public policy around opioids and REMS. Some thanatology content is tailored for AHP students. Requisite: PALC 6111, 6511, and 6512

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

### PALC 6210 - IDT Care for Symptoms: Part A (3 Credits)

Course covers the assessment and management of eight common non-pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

### PALC 6211 - IDT Care for Non-pain Symptoms: Part A (AHP) (3 Credits)

Offered jointly with PALC 6210; assessment/management of eight common non-pain symptoms (e.g. anorexia, asthenia, constipation and nausea/vomiting). Integrated with IDT topics such as psychological, social & spiritual distress, and ethical standards related to practice. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6220 - IDT Care for Symptoms: Part B (3 Credits)**

This course covers the assessment and management of eight different common non-pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics related to symptom assessment/management such as psychological, social & spiritual distress and ethical standards of practice.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6221 - IDT Care for Non-Pain Symptoms: Part B (AHP) (3 Credits)**

Offered jointly with PALC 6220; covers assessment & management of eight common non-pain symptoms (e.g. dyspnea, cough, and insomnia). Integrated with IDT topics such as psychological, social & spiritual distress and ethical standards. Some coursework tailored to AHP students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6310 - Advanced Illness in Special Settings: Part A (3 Credits)**

Assessment/management of 8 chronic illnesses (cardiopulmonary, end stage liver and renal diseases) emphasis on early PC combined with disease focused therapy. Attention: prognostication and transitions into palliative/hospice care or discontinuing treatments including bioethical review and IDT support. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6320 - Advanced Illness in Special Settings: Part B (3 Credits)**

Assessment/management of cancer and HIV as chronic illness with emphasis on early palliative care combined with disease focused therapy. Attention to prognostication, transition into palliative/hospice care. Paired with Spiritual Care review of challenging spiritual issues, hope, miracles and rituals. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6330 - Advanced Illness in Special Settings: Part C (3 Credits)**

Assessment/management of neurodegenerative disorders as chronic illness with emphasis on early palliative care combined with disease focused therapy. Attention to prognostication and transitions into palliative/hospice care. Paired with bioethical review and comfort care for the imminently dying. Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6410 - Death & Dying: Unique Role of the AHP (3 Credits)**

This course focuses on methadone, opioid infusions, interventional pain management, and other complex modalities. This class focuses on ethics and psychosocial issues including pain in the face of addiction and public policy around opioids and REMS. For AHP students only.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6510 - Core Concepts, Principles & Communication Skills (3 Credits)**

Online and on-campus intensive (some physical presence required) on palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Requirement: Restricted to PALC MS or certificate students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6511 - Online: Core Concepts, Principles & Commun. Skills (2 Credits)**

Online discussion of palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Co-Requisite: PALC 6512

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6512 - Intensive: Core Topics, Principles & Commun. Skills (1 Credit)**

On-campus, in-person intensive (physical presence required) discussion of palliative care topics including: models of care, early palliative care integration, whole person assessment, meaning of illness, and demonstration of advanced communications skills. Special focus on treatment plans with simulated patients/families. Co-Requisite: PALC 6511

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6520 - Communication Skill Refinement: IDT Collaboration (3 Credits)**

Online and on-campus intensive (some physical presence required). Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho-social-spiritual assessment integrated in treatment plans with simulated patients/families.

Prerequisite: PALC 6510

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PALC 6521 - Online: Comm. Skill Refinement: IDT Collaboration (2 Credits)**

Online. Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho-social-spiritual assessment integrated in treatment plans with simulated patients/families. Co-Requisite: PALC 6522

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PALC 6522 - Intensive: Comm. Skill Refinement: IDT Collaboration (1 Credit)**

On-campus, in-person intensive (physical presence required). Advanced topics in PC including refinement of advance PC skills covered Year 1 (e.g. communication) to ensure effectively application to your PC practice; demonstration of psycho-social-spiritual assessment integrated in treatment plans with simulated patients/families. Co-Requisite: PALC 6521

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6530 - Palliative Care Integrated in Your Community (3 Credits)  
Online and on-campus intensive (some physical presence required).  
Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Prerequisites: PALC 6510, PALC 6520, and PALC 6950 or PALC 6960

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6531 - Online: Palliative Care Integrated in Your Community (2 Credits)

Online. Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Co-Requisite: PALC 6532

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6532 - Intensive: Pall Care Integrated in Your Community (1 Credit)

On-campus, in-person intensive (physical presence required).

Demonstrate advanced PC communications skills & management of complex pain and symptoms; apply ethical training and practical experience with supportive interventions to help preserve dignity, achieve closure and have peace at life's end. Co-Requisite: PALC 6531

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

PALC 6910 - Systems Topics: Preparation to Capstone (3 Credits)

Palliative Care Research, Quality Improvement, Health Care Policy and Advocacy and Palliative Care Program development including institutional needs assessment and program planning. Instruction to become a PC Educator, development of professional resilience and role of medical humanities. Prerequisite: PALC 6511/PALC 6512

Grading Basis: Letter Grade with IP

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

PALC 6950 - Capstone Project (1-3 Credits)

MS Palliative Care Capstone Project. Students will design, implement, evaluate, and present the result of a research, QI, education, advocacy, or medical humanities project during year 2 with mentorship from faculty.

Results presented at final on-campus course (PALC 6530). Prerequisites: PALC 6910 and PALC 6520

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

PALC 6960 - Masters Thesis in Palliative Care (1-3 Credits)

Masters thesis work in Palliative Care. Final results presented at final on-campus course (PALC 6530). Prerequisite: PALC 6910 and 6520

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 12.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

PALC 7001 - Comm-Based Hospice and Pall Med Fellowship - A (8 Credits)

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

PALC 7002 - Comm-Based Hospice and Pall Med Fellowship - B (8 Credits)

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

PALC 7003 - Comm-Based Hospice and Pall Med Fellowship - C (4 Credits)

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

PALC 7004 - Comm-Based Hospice and Pall Med Fellowship - D (8 Credits)

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

PALC 7005 - Comm-Based Hospice and Pall Med Fellowship - E (8 Credits)

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

PALC 7006 - Comm-Based Hospice and Pall Med Fellowship - F (4 Credits)

For physicians MSPC students who are accepted as CB-HPM Fellows.

Graduate Medical Education and supervision for fellows to complete all clinical requirements for patient care and meet HPM Milestones. Pre- or Co-Requisite - PALC 6511/12

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

## Pathology (PATH)

**PATH 7005 - Pathology Selective for Third-Year Medical Students (8 Credits)**

Student rotates through Anatomic Pathology (AP) and Clinical Pathology (CP) services (surgical, cytology, autopsy, pediatric, transfusion medicine and hematopathology). Subspecialty rotations can be arranged in AP (GYN, GU, GI, pulmonary, molecular, hematopathology, neuropathology) or Clinical Pathology (CP) (clinical chemistry, microbiology, coagulation) per student's interest.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PATH 8000 - Pathology for Non-Pathologists (4-8 Credits)**

2-4 weeks. Max:2. The Department assigns hospital by interests of the student. Anatomic pathology includes autopsy, surgical pathology, hematopathology and cytology. Clinical pathology includes clinical chemistry, microbiology, coagulation/blood banking and molecular diagnosis. Intended for those interested in clinical medicine, especially a pathology career.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PATH 8050 - Pathology - Colorado Springs (4-8 Credits)**

Students will work with Pathology faculty and residents in the long-standing Penrose-St Francis Pathology Residency Program in Colorado Springs. Students will engage in experiential learning in laboratory medicine, anatomic pathology, and participate in didactics. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PATH 8100 - PATH Elective Away (8 Credits)**

This Pathology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PATH 8600 - Research in Pathology (4-24 Credits)**

2-12 wks. Prereq: Department approval must be obtained and all arrangements made at least one month in advance. The student must also receive approval from the Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**PATH 8630 - PATH Research Away (4-16 Credits)**

This Pathology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**PATH 8990 - Doctoral (1-10 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

## Pediatric Dentistry (DSPD)

**DSPD 6620 - Pediatric Dentistry 1 (0.1-5 Credits)**

Basic principles of clinical diagnosis and treatment of the child patient are introduced. Developmental aspects of the formation of the craniofacial complex are applied to clinical management of space maintenance, pupal, restorative, and behavior management problems.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSPD 6630 - Pediatric Dentistry 2 (0.1-5 Credits)**

Introductory courses in pediatric dentistry providing foundational knowledge for subsequent participation in pediatric dentistry clinical rotations. Laboratory and didactic components provide knowledge and skills for restorative treatment during the primary, transitional, and young permanent dentition phases.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSPD 7011 - Clinical Pediatric Dentistry 1 (0.1-5 Credits)**

Clinical rotation in pediatric dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSPD 7022 - Clinical Pediatric Dentistry 2 (0.1-5 Credits)**

Clinical rotation in pediatric dentistry.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSPD 7033 - Clinical Pediatric Dentistry 3 (0.1-5 Credits)**

Clinical rotation in pediatric dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSPD 7700 - Pediatric Dentistry 3 (0.1-5 Credits)**

Course emphasizes diagnostic and treatment considerations for pediatric patients, including lecture materials and case presentations to facilitate a good working knowledge of treatment planning/procedures covering sedation techniques as well as traumatic injuries, hospital dentistry and medically compromised patients.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSPD 8855 - Clinical Pediatric Dentistry (0.1-5 Credits)**

Course is a continuation from initial clinical courses and provides further experience in developmental, behavioral, preventive, diagnostic, and therapeutic care on a comprehensive basis for pediatric patients in the primary, transitional, and permanent dentition phases and patients with special health care needs.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall.



## Pediatrics (PEDS)

**PEDS 5005 - Exploring Epigenetics: Understanding Genes by Early Environmental Interactions (1-2 Credits)**

Exploring Epigenetics is a course aimed at educating the students on the factors that impact gene expression without a change to DNA sequence. There will be a few didactic sessions exploring basic epigenetic principles, model and mechanisms for research applications, and finally applications of epigenetics to pathology including neurodevelopmental disorders and impact of adverse exposures such as childhood trauma. Students will also rotate through clinical and laboratory experiences including the childhood trauma clinic (The Kempe Center for the Prevention and Treatment of Child Abuse and Neglect), genetics and oncology, and labs investigating epigenetic mechanisms. The students will be asked to produce three one paragraph reflection pieces throughout their course and lead a journal club on an article that pertains to course content.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**PEDS 6622 - Diabetes Mellitus (3 Credits)**

Max: 3. The student will spend 1 week at diabetes camp. One will learn about diabetes as well as children. Before and after camp, time will be spent at the Barbara Davis Center clinic. Clinical research projects can be developed if interested.

Grading Basis: Medical School

Typically Offered: Summer.

**PEDS 6623 - Warren Village Clinic (1 Credit)**

Offered summer, fall, spring semesters. Max:20/Min:8. An opportunity for Phase I and II students to participate in a pediatric clinic. Students will provide well-care and minor acute illness care for children. Students are required to attend an orientation and three to four Wednesday evening clinics.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8000 - Pediatric AI (8 Credits)**

4 wks. Max:3. This course can meet Sub-I qualifications. Designed for those students who are interested in further training in pediatrics. Students will be integrated as a functional member of a pediatric ward team. Restrictions: A 2-month advance notice is required to drop this course.

Grading Basis: Medical School

**PEDS 8004 - Pediatric Cardiology (8 Credits)**

4 wks. Max:1. Evaluation of children with heart disease by history, physical examination, electrocardiography, roentgenography, echocardiography, and cardiac catheterization will be stressed. The student will make rounds with the cardiology team, see consults, attend outpatient clinics, and participate in cardiac catheterizations and conferences.

Grading Basis: Medical School

**PEDS 8005 - Allergy and Immunology CHCO (4-8 Credits)**

The student will work alongside allergy and immunology providers and share in the care of patients from clinic, as well as inpatient consults. Opportunities will be provided to observe skin testing, food/drug challenges, immuno-therapy, and pulmonary function testing. Offer 2, 4 wk

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Spring, Summer.

**PEDS 8006 - National Jewish Immunology and Allergy (4-24 Credits)**

Max: 2. The student is assigned to a pediatric allergy attending; share in the care of NJC outpatients, attend lectures, rounds, and conferences. Patient responsibility delegated by attending and commensurate with the student's interest/ability. Opportunities provided to observe laboratory procedures in immunology/pulmonary physiology laboratories. Weeks offered 2, 4, 8, 12.

Grading Basis: Medical School

**PEDS 8007 - Child Abuse and Neglect (4-8 Credits)**

2 wks. Max:1. Held at TCH and Kempe Center. Basic principles of Child Abuse and Neglect; participate in team evaluation of outpatient and inpatient child abuse cases, and attend court with team members.

Primarily observational and includes independent study. One case write-up required. Restrictions: Not available sections 21-24.

Grading Basis: Medical School

**PEDS 8008 - Birth Defects/ Genetics (8-24 Credits)**

4,6,8, or 12 wks. Max:1. Rotation includes experience in the General Genetics, Inherited Metabolic Diseases, Muscle, Neurocutaneous and outreach clinics. Students will participate in diagnosis, pedigree assessment and management. Students will participate in consultations with faculty, attend conferences, visit laboratories; an oral presentation is required.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**PEDS 8009 - Peds Infectious Disease (8 Credits)**

4 wks. Max:1. This course provides experience in the pathophysiology, diagnosis, and therapy of childhood infections. Students evaluate inpatients and present cases at daily teaching rounds. Experience in the diagnostic Microbiology laboratory is provided. There is a weekly HIV/ infectious disease clinic.

Grading Basis: Medical School

**PEDS 8010 - EPAC Individualized Elective (4-24 Credits)**

This course allows students in the Education in Pediatrics Across the Continuum (EPAC) to develop an individualized learning experience. This may include rotations in areas that do not have an existing course or a combination of experiences across courses.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

**PEDS 8011 - Pediatric Pulmonary (8 Credits)**

Max:1. Basic background knowledge in pediatric pulmonary physiology and disease will be provided. The student will attend rounds, clinics and weekly conferences and participate in hospital consultations. Students will be expected to present a seminar/case discussion on a pediatric pulmonary topic. Weeks offered 4

Grading Basis: Medical School

Repeatable. Max Credits: 12.

**PEDS 8012 - Pediatric Neurology (8-24 Credits)**

4,6, or 12 wks. Max:1. Child Neurology provides students with the opportunity to gain experience evaluating children with a wide variety of neurological problems. Students will round on hospital and clinic patients, complete assigned readings and attend Neurology grand rounds.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**PEDS 8013 - Pediatric Endocrinology (8 Credits)**

Max:1. A large variety of patients with abnormalities of growth and pubertal development, thyroid disorders, and diabetes mellitus are reviewed and treated each week. Seminars on selected topics are scheduled three times per week. Weeks offered 4.

Grading Basis: Medical School

**PEDS 8015 - Pediatric Neonatology AI (8 Credits)**

4 wks. Max:3. This course can meet Sub-I qualifications. Student assigned to UCH, DHMC, or TCH and will participate actively in the care of critically-ill infants including work rounds, attending rounds, conferences and night call. Experience will be gained in procedures and ventilator management.

Grading Basis: Medical School

**PEDS 8018 - General Academic Peds (4-8 Credits)**

Max:1. This course offers exciting experience in ambulatory pediatrics at The Children's Hospital. There are 9 educational conferences per week. No night call. offer 2 wks

Grading Basis: Medical School

**PEDS 8020 - Adolescent Medicine (8 Credits)**

4 wks. Max:1. Provides basic knowledge and clinical skills in diagnosis and management of medical problems during adolescence. Including development of skills in interviewing and counseling adolescents in various health care settings. Students will prepare and present a seminar/case discussion on this topic.

Grading Basis: Medical School

**PEDS 8021 - Pediatric Disability Medicine (8 Credits)**

Pediatric Disability Medicine is a four-week course designed to give students exposure to important concepts of disability, issues affecting children with disabilities and their families, multidisciplinary clinical care of this population and an introduction to transition to adulthood.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PEDS 8022 - Peds Gastroenterology (8 Credits)**

Max:1. Clinical rotation on pediatric gastroenterology inpatient and outpatient services and procedure unit and scheduled conferences. This rotation is designed for students with a specific interest in pediatrics and/or gastroenterology.

Grading Basis: Medical School

**PEDS 8023 - Healthy Beginnings Clinic: 4th Year Manager (4 Credits)**

Fourth year course for students who are already members of the Warren Village Healthy Beginnings Clinic Steering Committee. Students will continue to attend meetings and manage clinic. They are also expected to lead teaching and clinical development of students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**PEDS 8024 - Child Development/Behavior (4-8 Credits)**

2 or 4 wks. Max:1. Medical students will participate in the medical assessment and treatment of children with developmental and behavioral problems. They will attend lectures, participate in the seminars, and observe multidisciplinary assessments of children with developmental disorders.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**PEDS 8025 - Peds Emergency Medicine (4-8 Credits)**

Max:1. Students gain experience in assessment/management of common conditions in a pediatric emergency department including minor emergencies, acutely ill children, and traumatic diagnoses. Procedural experience at student's level, and at attending's discretion, will also be gained.

Grading Basis: Medical School

**PEDS 8026 - Pediatric Nephrology (4-8 Credits)**

4 wks. Max:1. Students will actively participate in the care and evaluation of patients under the direction of the attending and participating resident. Common problems such as hematuria, proteinuria, electrolyte disturbances, chronic renal insufficiency, hypertension, hemodialysis, peritoneal dialysis, and renal transplantation are addressed.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8027 - Pediatric ICU AI (8 Credits)**

4 wks. Max:1. This course can meet Sub-I qualifications. The sub-intern is responsible for evaluation and continuing care of patients under the supervision of a Fellow and Attending. The student will learn basic pathophysiology of critical illness and enhance skills in reporting and interpreting clinical data, and patient management. Prereq: IDPT 7020 Infant/Adolescent Care.

Grading Basis: Medical School

**PEDS 8029 - Breastfeeding Management (4 Credits)**

2 wks. Max:2. An introduction to breastfeeding as a medical topic, with precepting by lactation specialists at clinical sites and self-directed learning through complementary activities. Assessment and management of mother/infant breastfeeding dyad is emphasized. Contact Dr. Bunik two weeks before start or Laura.Primak@uchsc.edu.

Grading Basis: Medical School

**PEDS 8030 - Vaccination in Pediatrics (4-8 Credits)**

4 wks. Max:2. Students develop extensive knowledge in ambulatory general pediatrics with an emphasis on vaccine preventable diseases. Experiences include didactics on vaccination, vaccine screening, advocacy, and report writing. Exposure to laboratory vaccine research supported but requires availability. Prereq: MS III Pediatric Rotation.

Grading Basis: Medical School

**PEDS 8031 - Pediatric Hematology/Oncology (8 Credits)**

Students will participate in the clinical activities of the Pediatric Hematology-Oncology Service, both inpatient and outpatient. They will be involved in patient care, perform procedures including lumbar punctures and bone marrow aspirated/biopsies, and attend relevant conferences. Prereq: Successful completion of all third year clerkships. No restrictions at this time. Course will also be offered to externs.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PEDS 8050 - Pediatric Gastroenterology Colorado Springs (8 Credits)**

Students will see patients in the pediatric GI inpatient and outpatient setting. Students will be exposed to common GI procedures. The rotation is designed for students with specific interest in pediatrics and gastroenterology. Instructor consent required.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PEDS 8051 - Pediatric Cardiology CSB (4-8 Credits)**

This elective provides an opportunity to become acquainted with the special diagnostic and therapeutic problems of the infant and child with heart disease. Diagnosis by history, physical exam, electrocardiography (fetal and pediatric) chest x-ray, etc. will be emphasized. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PEDS 8052 - Pediatric Hematology Oncology – Colorado Springs (4-8 Credits)**

Students will see patients in the pediatric neurology inpatient and the outpatient setting. Students will be exposed to common neurology procedures. The rotation is designed for students with specific interest in pediatrics and neurology. Pre-requisite: Successful completion of all third year clerkships

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8053 - Pediatric Neurology – Colorado Springs (4-8 Credits)**

Students will see patients in the pediatric neurology inpatient and the outpatient setting. Students will be exposed to common neurology procedures. The rotation is designed for students with specific interest in pediatrics and neurology. Pre-requisite: Successful completion of all third year clerkships

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8054 - Pediatric ENT– Colorado Springs (4-8 Credits)**

Students will see patients in the pediatric ENT inpatient and the outpatient setting. Students will be exposed to common ENT procedures. The rotation is designed for students with specific interest in pediatrics and otolaryngology. Pre-Requisite: Successful completion of all third year clerkships

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8100 - PEDS Elective Away (4-8 Credits)**

This Pediatric elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PEDS 8600 - Research in Pediatrics (4-24 Credits)**

2-12 wks. Prereq: Student must receive departmental approval one semester in advance of rotation. Approval from the Associate Dean for Student Affairs required. Restrictions: Sections 49-50 not available.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 32.

**PEDS 8630 - PEDS Research Away (4-16 Credits)**

This Pediatric research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Periodontics (DPER)

**DPER 5105 - Research Methodology & Biostatistics 1 (0.1-11 Credits)**

This graduate course in dentistry is an in-depth study of scientific research methods, study design and organization, data gathering, and the biostatistical tools required to analyze the results of a study and carryout a scientific research project.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Fall.

**DPER 5205 - Research Methodology & Biostatistics 2 (0.1-11 Credits)**

This graduate course in dentistry is an advanced in-depth study of scientific research methods, study design and organization, data gathering, and the biostatistical tools required to analyze the results of a study. In addition, this course requires the student to prepare a research proposal.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 6209 - Surgical Anatomy and Osteology (0.1-11 Credits)**

Presentation of surgical anatomy related to procedures that a periodontist would perform. Comprehensive osteology is reviewed to prepare the orthodontic resident for board certification with also an emphasis on surgical procedures relevant to the orthodontist.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 7100 - Periodontics Specialty Clinic 1 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7101 - Periodontal Current Literature (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed. Requisite: Department Consent.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 7103 - Periodontal Literature Review Seminar I (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed. Requisite: Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 7111 - Advanced Periodontal Concepts (0.1-11 Credits)**

This postdoctoral course is an intense review of periodontal procedures, in which residents are also instructed in periodontal case documentation procedures, intraoral photography, record keeping and clinical protocol.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7112 - Postgraduate Dental Implantology Seminar 1A (0.7 Credits)**

In this initial lecture and seminar course, relevant readings in the dental literature relating to specific topics in dental implantology are assigned and critically discussed. A variety of cases are treatment planned by the residents. (Part 1 of three- semester course).

Grading Basis: Letter Grade

**DPER 7113 - Oral Medicine and Clinical Diagnosis (0.1-11 Credits)**

In this postdoctoral course, students review a variety of oral diseases and accepted methods of treatment of those as well as systemic diseases manifested in the oral cavity.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7114 - Physical Diagnosis (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7115 - Interdisciplinary Course 1A (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7120 - Advanced Periodontal Biology (3 Credits)**

Grading Basis: Letter Grade

**DPER 7200 - Periodontics Specialty Clinic 2 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures. Prereq: DPER 7100.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7201 - Periodontics Current Literature 1A (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed.

Requisite: Department Consent Required

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 7202 - Periodontics Treatment Planning 1A (0.3 Credits)**

In this postdoctoral seminar course, Periodontics and GPR residents present a documentation database, diagnosis and treatment plans for patients treated communally in these two clinics. (Part 1 of two-semester course).

Grading Basis: Letter Grade

**DPER 7203 - Periodontal Literature Review Seminar 1A (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7204 - Periodontal Case Presentations Seminar 1A (0.1-11 Credits)**

In this postdoctoral course, residents prepare and present a complete documentation database, diagnostic/ prognosis, treatment plan, treatment procedures, and evaluation of treatment results in formal case presentations simulating the oral examination for the American Board of Periodontology. (Part 1 of two- semester course).

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7210 - Advanced Periodontal Biology (0.1-11 Credits)**

This postdoctoral course develops a fundamental understanding of the microscopic anatomy, cell biology and physiology of the periodontal tissues in health, during disease progression, and following periodontal therapy.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7211 - Pain Control & Sedation/Comprehensive Pain Management (0.1-11 Credits)**

This is a postgraduate course for pain control and sedation and evaluation of patients to determine appropriate modalities of pain and anxiety control. Department Consent Required.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**DPER 7212 - Postgraduate Dental Implantology Seminar 1B (0.1-11 Credits)**

In this initial lecture and seminar course, relevant readings in the dental literature relating to specific topics in dental implantology are assigned and critically discussed. A variety of cases are treatment planned by the residents. (Part 2 of three- semester course). Prereq: DPER 7112.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7215 - Interdisciplinary Course 1B (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 7216 - Pharmacology 1 (0.1-11 Credits)**

Review General Principles: Current pharmacology for the medical management of pain, infection, & selected systemic diseases; & adverse drug events. Based on the 200 drugs dispensed by US community pharmacies for prevention, diagnosis, and treatment of disease, special reference/dent. Requisite: Department Consent Required

Grading Basis: Letter Grade

Repeatable. Max Credits: 12.

Typically Offered: Summer.

**DPER 7219 - Dental and Medical Emergency Management (0.1-11 Credits)**

This is a pragmatic course to familiarize the resident with dental and medical emergencies that may present during patient care. Major texts on medical emergency management and the medically compromised patient are used as a guideline. Department consent required

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.



**DPER 7220 - Research and Methodology and Biostatistics I (2.5 Credits)**

Course is designed to introduce periodontal residents to critical thinking, research methodology, and evidenced-based practice skills. Topics include basic assumptions and concepts of biomedical research, writing skills, and experimental design.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPER 7300 - Periodontics Specialty Clinic 3 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures. Prereq: DPER 7100, DPER 7200.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 7301 - Periodontics Current Literature 1B (0.1-11 Credits)**

This postdoctoral course encompasses a review of the latest dental and medical journals for the most recent information related to the art, science, and practice of periodontics. Students prepare abstracts to be discussed at scheduled seminars. (Part 2 of two-semester course). Prereq: DPER 7201.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 7302 - Periodontics Treatment Planning 1B (0.5 Credits)**

In this postdoctoral seminar course, Periodontics and GPR residents present a documentation database, diagnosis and treatment plans for patients treated communally in these two clinics. (Part 2 of two-semester course). Prereq: DPER 7202.

Grading Basis: Letter Grade

**DPER 7303 - Periodontal Literature Review Seminar 2 (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed. Prereq: DPER 7203.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 7304 - Periodontal Case Presentations Seminar 1B (0.1-11 Credits)**

In this postdoctoral course, residents prepare and present a complete database, diagnostic/prognosis, treatment plan, treatment procedures, and evaluation of treatment results in formal case presentations simulating the oral examination for the American Board of Periodontology. (Part 2 of two-semester course). Prereq: DPER 7204.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 7305 - Periodontal Research 1 (0.1-11 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and analyze the results, and write a publishable manuscript on the project.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 7308 - Ethics, Financial and Practice Management 1 (0.1-11 Credits)**

This course provides the periodontal resident with the information needed for successful personal financial and practice management. Curriculum will rotate over a three year cycle to include personal financial management, human resources, accounting, legal, and dental practice management. Department Consent Required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 7311 - Pain Control & Sedation/Comprehensive Pain Management 2 (1 Credit)**

This is a postgraduate course in pain control and sedation, and evaluation of patients to determine appropriate modalities of pain and anxiety control. (Part 2 of two-semester course) Prereq: DPER 7211.

Grading Basis: Letter Grade

**DPER 7312 - Postgraduate Dental Implantology Seminar 1C (1 Credit)**

In this initial lecture and seminar course, relevant readings in the dental literature relating to specific topics in dental implantology are assigned and critically discussed. A variety of cases are treatment planned by the residents. (Part 3 of three- semester course). Prereq: DPER 7112, DPER 7212.

Grading Basis: Letter Grade

**DPER 7315 - Interdisciplinary Course 1C (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department Consent Required:

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 7316 - Pharmacology II (0.1-11 Credits)**

Review General Principles: Current pharmacology for the medical management of pain, infection, & selected systemic diseases; & adverse drug events. Based on top 200 drugs dispensed by US pharmacies for prevention, diagnosis, and treatment of disease, special reference/dent. Prerequisites: Department Consent Required

Grading Basis: Letter Grade

Repeatable. Max Credits: 12.

Typically Offered: Spring.

**DPER 7317 - Implant Provisionalization for the Periodontal Resident (0.1-11 Credits)**

This course serves as a didactic and laboratory course to develop competency in implant provisionalization.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 7320 - Research Methodology and Biostatistics 2 (3 Credits)**

This postdoctoral course is an in-depth study of scientific research methods, study design and organization, data gathering, and the Biostatistical tools required to analyze the results of the study. Prereq: DPER 7220.

Grading Basis: Letter Grade

Typically Offered: Spring.



**DPER 8100 - Periodontics Specialty Clinic 4 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures. Prereq: DPER 7100, DPER 7200, DPER 7300.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8101 - Periodontal Current Literature 2 (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed. Requisite: Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 8102 - Periodontal Literature Review Seminar 2 (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed. Requisite: Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 8105 - Periodontal Research 2 (0.1-11 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DPER 7305.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8106 - Anesthesiology (0.1-11 Credits)**

This is a hospital based seminar and clinical course to familiarize the resident in patient evaluation, pharmacology, airway management IV techniques, and general anesthesia procedures.

Grading Basis: Letter Grade

**DPER 8110 - Advanced Radiology and Radiographic**

**Interpretation (0.1-11 Credits)**

This graduate course in dentistry in oral and maxillofacial radiology lectures and case studies in radiation physics, radiation biology, radiation hygiene and radiographic techniques. In addition, this course will provide information on advanced imaging modalities and interpretative skills.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8113 - TMJ Clinic 1A (Rotation) (0.3 Credits)**

TMJ disorders are reviewed and treatment provided using a variety of pharmacologic, mechanical, and biofeedback methods in these clinic sessions. Prereq: DPER 7313.

Grading Basis: Letter Grade

**DPER 8115 - Interdisciplinary Course 2A (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8116 - Management of Orofacial Pain (0.1-11 Credits)**

This course focuses on the structure, function, and pathofunction of the cranio-cervical region and stomatognathic system emphasizing different diagnosis and case-specific management utilizing evidenced-based decision making. Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 8120 - Head and Neck Anatomy (0.1-11 Credits)**

This postdoctoral course is an advanced study of head and neck anatomy as it relates to periodontal patient care.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8140 - Scientific Wrtng & Eval (1.5 Credits)**

Grading Basis: Letter Grade

**DPER 8200 - Periodontics Specialty Clinic 5 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures. Prereq: DPER 7100, DPER 7200, DPER 7300, DPER 8100.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8201 - Periodontal Current Literature 2A (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed.

Requisite: Department Consent Required

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 8202 - Periodontics Treatment Planning 2A (1 Credit)**

In this postdoctoral seminar course, Periodontics and GPR residents present a documentation database, diagnosis and treatment plans for patients treated communally in these two clinics (Part 1 of two-semester course). Prereq: DPER 7202, DPER 7302.

Grading Basis: Letter Grade

**DPER 8203 - Periodontal Literature Review Seminar 3 (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed.

Prereq: DPER 7203, DPER 7303.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8204 - Periodontal Case Presentations Seminar 2A (0.1-11 Credits)**

In this postdoctoral course, residents prepare and present a complete documentation database, diagnosis/ prognosis, treatment plan, treatment procedures, and evaluation of treatment results in formal case presentations simulating the oral examination for the American Board of Periodontology. (Part 1 of two-semester course). Prereq: DPER 7204, DPER 7304.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8205 - Periodontal Research 3 (0.1-11 Credits)**

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project. Prereq: DPER 7305, DPER 8105.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8206 - Periodontics Clinical Teaching 1A (0.1-11 Credits)**

Postdoctoral periodontics students gain experience in instructing dental and hygiene students after receiving instruction in the basics of didactic and clinical teaching. (Part 1 of two-semester course).

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8207 - Minor Tooth Movement 1A (1.3 Credits)**

This didactic and clinical course will familiarize the resident with orthodontic procedures that can be utilized in comprehensive periodontal treatment. Clinical cases will be treated in conjunction with orthodontic residents and faculty. (Part 1 of two-semester course).

Grading Basis: Letter Grade

**DPER 8212 - Postgraduate Dental Implantology Seminar 2A (1 Credit)**

In this initial lecture and seminar course, relevant readings in the dental literature relating to specific topics in dental implantology are assigned and critically discussed. a variety of cases are treatment planned by the residents. (Part 1 of two-semester course). Prereq: DPER 7112, DPER 7212, DPER 7312.

Grading Basis: Letter Grade

**DPER 8213 - TMJ Clinic 1B (rotation) (1 Credit)**

TMJ disorders are reviewed and treatment provided in these clinic sessions. Prereq: DPER 7313, DPER 8113.

Grading Basis: Letter Grade

**DPER 8215 - Interdisciplinary Course 2B (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8216 - Pharmacology III (0.1-11 Credits)**

Review General Principles: Current pharmacology for the medical management of pain, infection, & selected systemic diseases; & adverse drug events. Based on top 200 drugs dispensed by US community pharmacies for prevention, diagnosis, and treatment of disease, reference/dent. Prerequisite: Department Consent Required

Grading Basis: Letter Grade

Repeatable. Max Credits: 12.

Typically Offered: Summer.

**DPER 8219 - Dental and Medical Emergency Management (0.1-11 Credits)**

This is a pragmatic course to familiarize the resident with dental and medical emergencies that may present during patient care. Major texts on medical emergency management and the medically compromised patient are used as a guideline. Department consent required

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 8221 - Implants in the Orthodontic Patient (1 Credit)**

This postdoctoral course is an in-depth study of the use of implants in patients both for restorative dentistry and as an orthodontic anchorage.

Grading Basis: Letter Grade

**DPER 8222 - Periodontic/Orthodontic Treatment (0.1-11 Credits)**

This postdoctoral course is a study of the interdisciplinary care of the patient with periodontal and orthodontic needs and includes a review of the literature in conjunction with a periodontist and orthodontist.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 8300 - Perio Specialty Clin 6 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 8301 - Periodontics Current Literature 2B (0.1-11 Credits)**

Prereq: DPER 7201, DPER 7301, DPER 8201 This postdoctoral course encompasses a review of the latest dental and medical journals for the most recent information related to the art, science, and practice of periodontics. Students prepare abstracts to be discussed at scheduled seminars. (Part 2 of two-semester course)

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 8302 - Pero Treatment Plan 2B (0.5 Credits)**

In this postdoctoral seminar course, Periodontics and GPR residents present a documentation database, diagnosis and treatment plans for patients treated communally in these two clinics. (Part 4 of two-semester course)

Grading Basis: Letter Grade

**DPER 8303 - Perio Lit Rev Seminar 4 (0.1-11 Credits)**

In this postdoctoral seminar course, relevant readings in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 8304 - Perio Case Pres Sem 2B (0.1-11 Credits)**

In this postdoctoral course, residents prepare and present a complete documentation database, diagnosis/prognosis, treatment plan, treatment procedures, and evaluation of treatment results in formal case presentations simulating the oral examination for the American Board of Periodontology. (Part 2 of two-semester course)

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 8305 - Perio Research 4 (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 8306 - Perio Clin Teaching 1B (0.1-11 Credits)**

Postdoctoral periodontics students gain experience in instructing dental and hygiene students after receiving instruction in the basics of didactic and clinical teaching. (Part 2 of two-semester course)

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 8307 - Minor Tooth Mvt 1B (2 Credits)**

This didactic and clinical course will familiarize the resident with orthodontic procedures that can be utilized in comprehensive periodontal treatment. Clinical cases will be treated in conjunction with orthodontic residents and faculty. (Part 2 of two-semester course)

Grading Basis: Letter Grade

**DPER 8308 - Ethics, Financial and Practice Management 2 (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Spring.

## DPER 8311 - Adv Immu/ Microbiology (0.1-11 Credits)

This postdoctoral course will review and update knowledge in the areas of microbiology and immunology relevant to homeostasis and pathology in the oral cavity.

Grading Basis: Letter Grade

Typically Offered: Spring.

## DPER 8312 - Postgrad Den Imp Sem 2B (1 Credit)

In this lecture and seminar course, relevant readings in the dental literature relating to specific topics in dental implantology are assigned and critically discussed. A variety of cases are treatment planned by the residents. (Part 2 of two-semester course)

Grading Basis: Letter Grade

## DPER 8314 - Adv Tpcs in Pharmacology (1.5 Credits)

This is an advanced course in Pharmacology that will provide residents with a review and update of pharmacology and an understanding of applied pharmacology and patient care.

Grading Basis: Letter Grade

## DPER 8315 - Interdisciplinary Course 2C (0.1-11 Credits)

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

## DPER 8316 - Pharmacology IV (0.1-11 Credits)

Review General Principles: Current pharmacology for the medical management of pain, infection, & selected systemic diseases; & adverse drug events. Based on top 200 drugs dispensed by US community pharmacies for prevention, diagnosis, and treatment of disease, reference/dent. Prerequisite: Department Consent Required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

## DPER 8317 - Advanced Oral &amp; Maxillofacial Pathology for Periodonon (0.1-11 Credits)

This course is designed to prepare residents to recognize, analyze, & appreciate primary/secondary disease conditions of the oral & paraoral regions. Reflects an emphasis on the understanding of basic & fundamental biologic aberrations and an integration of these concepts into a meaningful approach to diagnostic pathology. Department Consent Required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

## DPER 9015 - Interdisciplinary Course 3A (0.1-11 Credits)

Seminar includes residents from GPR and Graduate Periodontics and GPR periodontics and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment.

Topics involving new advancements are presented and discussed. 1.0.

Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

## DPER 9017 - Scientific Writing and Evaluation (0.1-11 Credits)

This graduate course in dentistry is an in-depth study of scientific writing to prepare the student to evaluate the literature as well as to prepare a scientific manuscript for publication.

Grading Basis: Letter Grade

Typically Offered: Summer.

## DPER 9100 - Perio Specialty Clin 7 (0.1-11 Credits)

This is an advanced course in Pharmacology that will provide residents with a review and update of pharmacology and an understanding of applied pharmacology and patient care.

Grading Basis: Letter Grade

Typically Offered: Summer.

## DPER 9101 - Periodontal Current Literature 3A (0.1-11 Credits)

In this postdoctoral seminar course, relevant reading in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

## DPER 9102 - Periodontal Literature Review Seminar 5 (0.1-11 Credits)

In this postdoctoral seminar course, relevant reading in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

## DPER 9105 - Periodontal Research 5 (0.1-11 Credits)

Course requires student to select a research topic, define a research question, do a literature search on the topic, organize a research project, carry out the project, collect and analyze the results, and write a publishable manuscript on the project.

Grading Basis: Letter Grade

Typically Offered: Summer.

## DPER 9106 - Periodontics Clinical Teaching 2A (0.1-11 Credits)

Postdoctoral periodontics students gain experience in instructing dental and hygiene students after receiving instruction in the basics of didactic and clinical teaching. (Part 1 of two-semester course)

Grading Basis: Letter Grade

Typically Offered: Summer.

## DPER 9107 - Periodontics Specialty Elective (3 Credits)

This postdoctoral course will allow the resident to gain extra experience and to concentrate in an area of his/her choosing such as research, teaching, dental implants, periodontal plastic surgery, etc.

Grading Basis: Letter Grade

Typically Offered: Summer.

## DPER 9115 - Advanced Diagnosis of Oral Lesions (0.3 Credits)

Oral/maxiofacial pathology course designed to prepare residents in recognizing/ analyzing/appreciating primary/secondary disease conditions of oral/paraoral regions which may present in patients under his/her care and respond in appropriate manner when conditions manifest. Reflects an emphasis on understanding basic/fundamental biologic aberrations and integrate concepts into meaningful diagnostic pathology approach.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 9116 - Interdisciplinary Course 3A (1 Credit)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9200 - Perio Specialty Clin 8 (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9201 - Periodontal Current Literature 3B (0.1-11 Credits)**

In this postdoctoral seminar course, relevant reading in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 9202 - Perio Treatment Plan 3A (0.3 Credits)**

Grading Basis: Letter Grade

**DPER 9203 - Periodontal Literature Review Seminar 6 (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9204 - Perio Case Pres Sem 3A (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9205 - Periodonal Research 6 (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9206 - Perio Clin Teaching 2B (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9209 - Perio Specialty Elective (2 Credits)**

Grading Basis: Letter Grade

**DPER 9212 - Postgrad Dent Imp Sem 3A (0.7 Credits)**

Grading Basis: Letter Grade

**DPER 9215 - Interdisciplinary Course 3B (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPER 9216 - Pharmacology V (0.1-11 Credits)**

Review General Principles: Current pharmacology for the medical management of pain, infection, & selected systemic diseases; & adverse drug events. Based on top 200 drugs dispensed by US community pharmacies for prevention, diagnosis, and treatment of disease, reference/dent. Requisite: Department Consent Required

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 9219 - Dental and Medical Emergency Management (0.1-11 Credits)**

This is a pragmatic course to familiarize the resident with dental and medical emergencies that may present during patient care. Major texts on medical emergency management and the medically compromised patient are used as a guideline. Department consent required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Summer.

**DPER 9300 - Perio Specialty Clin 9 (0.1-11 Credits)**

In this postdoctoral course, students receive experiences with all accepted methods of periodontal treatment, dental implantology, and periodontal plastic procedures.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 9301 - Periodontal Current Literature 3C (0.1-11 Credits)**

In this postdoctoral seminar course, relevant reading in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 9302 - Perio Treat Plan 3B (0.5 Credits)**

In this postdoctoral seminar course, Periodontic and GPR residents present a documentation database, diagnosis and treatment plans for patients treated communally in these two clinics. (Part 2 of two-semester course)

Grading Basis: Letter Grade

**DPER 9303 - Periodontal Literature Review Seminar 7 (0.1-11 Credits)**

In this postdoctoral seminar course, relevant reading in the periodontal literature relating to specific topics are assigned and critically discussed.

Grading Basis: Letter Grade

Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 9304 - Perio Case Pres Sem 3B (0.1-11 Credits)**

In this postdoctoral course, residents prepare and present a complete documentation database, diagnosis/prognosis, treatment plan, treatment procedures, and evaluation of treatment results in formal case presentations simulating the oral examination for the American Board of Periodontology. (Part 2 of two-semester course)

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 9305 - Periodontal Research 7 (0.1-11 Credits)**

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 9306 - Perio Clin Teaching 2C (0.1-11 Credits)**

Prereq: DPER 8206, DPER 8306, DPER 9106, DPER 9206 Postdoctoral periodontics students gain experience in instructing dental and hygiene students after receiving instruction in the basics of didactic and clinical teaching. (Part 3 of three-semester course)

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPER 9308 - Ethics, Financial and Practice Management 3 (0.1-11 Credits)**

This course provides the periodontal resident with the information needed for successful personal financial and practice management. Curriculum will rotate over a three year cycle to include personal financial management, human resources, accounting, legal, and dental practice management. Department Consent Required.

Grading Basis: Letter Grade  
Repeatable. Max Credits: 11.

Typically Offered: Spring.

**DPER 9309 - Perio Specialty Elective (3 Credits)**

This postdoctoral course will allow the resident to gain extra experience and to concentrate in an area of his/her choosing such as research, teaching, dental implants, periodontal plastic surgery, etc.

Grading Basis: Letter Grade

**DPER 9312 - Postgrad Implant Sem 3B (1 Credit)**

This lecture and seminar course, relevant readings in the dental literature relating to specific topics in dental implantology are assigned and critically discussed. A variety of cases are treatment planned by the residents. (Part 2 of two-semester course)

Grading Basis: Letter Grade

**DPER 9315 - Interdisciplinary Course 3C (0.1-11 Credits)**

Seminar includes residents from GPR and Graduate Periodontics and GPR, periodontics, and prosthodontics faculty to share clinically relevant multidisciplinary information. Patient diagnostic evaluations and treatment plans are evaluated in an interactive environment. Topics involving new advancements are presented and discussed. Department consent required.

Grading Basis: Letter Grade  
Typically Offered: Spring.

**DPER 9316 - Pharmacology VI (0.1-11 Credits)**

Review General Principles: Current pharmacology for the medical management of pain, infection, & selected systemic diseases; & adverse drug events. Based on top 200 drugs dispensed by US community pharmacies for prevention, diagnosis, and treatment of disease, reference/dent. Prerequisite: Department Consent Required

Grading Basis: Letter Grade  
Repeatable. Max Credits: 11.

Typically Offered: Spring.

## Periodontics (DSPE)

**DSPE 5500 - Periodontics 1 (0.1-5 Credits)**

This course is designed to make the student familiar with the normal periodontium, as well as the epidemiology, etiology and pathogenesis of periodontal disease.

Grading Basis: Letter Grade with IP  
Typically Offered: Summer.

**DSPE 6031 - Clinical Periodontics 1 (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Pass/Fail with IP  
Typically Offered: Summer.

**DSPE 6601 - Periodontology 2 (0.1-10 Credits)**

This course provides the information needed to successfully complete a comprehensive periodontal evaluation and correctly interpret radiographs.

Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

**DSPE 6605 - Periodontology 2 Laboratory - Section 1 (0.1-5 Credits)**

This course runs parallel with Periodontology 2. It is devoted to teaching the clinical skills necessary for the practice of periodontics within the context of a general dental practice.

Grading Basis: Letter Grade with IP  
Typically Offered: Fall.

**DSPE 6606 - Periodontology 3 Laboratory (0.1-5 Credits)**

This course runs parallel with Periodontology3. It is devoted to teaching the clinical skills necessary for the practice of periodontics within the context of a general dental practice.

Grading Basis: Letter Grade with IP  
Typically Offered: Spring.

**DSPE 6607 - Periodontology 3 (0.5-10 Credits)**

This course deals with the prevention, treatment and control of periodontal disease. Currently accepted therapies are discussed in detail. In addition, the student is taught how to evaluate new therapies which periodically become available.

Grading Basis: Letter Grade with IP  
Typically Offered: Spring.

**DSPE 6610 - Periodontology 4 (0.1-5 Credits)**

Course is devoted to making the student familiar with the surgical management of periodontal disease. The indications and rationale for resection, reconstructive and mucogingival procedures are discussed.

Grading Basis: Letter Grade with IP  
Typically Offered: Summer.

**DSPE 7011 - Clinical Periodontics 2 (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

**DSPE 7022 - Clinical Periodontics 3 (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Letter Grade with IP  
Typically Offered: Spring.

**DSPE 7033 - Clinical Periodontics 4 (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Letter Grade with IP  
Typically Offered: Summer.

**DSPE 8011 - Clinical Periodontics 5 (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Pass/Fail with IP  
Typically Offered: Fall.

**DSPE 8022 - Clinical Periodontics 6 (0.1-5 Credits)**

Clinical rotation in periodontics.

Grading Basis: Pass/Fail with IP  
Typically Offered: Spring.

**DSPE 8857 - Clinical Periodontics (0.1-4.5 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.5.



## Pharm. Cannabis Science & Med. (PCSM)

PCSM 6710 - Cannabis Therapeutics Neurology/Mental Health (2 Credits)

The evidence-based risks and benefits of cannabis and/or FDA-approved and investigational cannabis-derived drugs will be discussed in epilepsy and movement disorders, sleep, and migraine. Cannabis use in various mental health conditions will be presented, including depression, anxiety, post-traumatic stress, and schizophrenia.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

PCSM 6720 - Cannabis Therapeutics Pain/Oncology (2 Credits)

The evidence-based risks and benefits of cannabis and/or FDA-approved and investigational cannabis-derived drugs will be discussed in management of various types of pain, and their supportive role in oncology. Patient safety considerations, including drug-cannabis interactions, and at-risk populations with cannabis use will be presented.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

PCSM 6730 - Legal & Regulatory Issues in Cannabis Medicine (2 Credits)

The legal history of cannabis and industrial hemp in the United States and the current diversity of state and federal regulations governing the sale and use of cannabis and cannabis-derived medicinal and retail products will be discussed, as well as how these regulations influence basic science and clinical research on cannabis.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

PCSM 7700 - Cannabis Pharmacology & Physiology (3 Credits)

This course addresses the history, botany, medicinal chemistry and pharmacology of active constituents in cannabis and hemp, with particular emphasis on their interplay with endogenous cannabinoids and the endocannabinoid system of the body. FDA-approved cannabinoid products and synthetic cannabinoids will also be discussed.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

PCSM 7710 - Chemical Analysis of Cannabis (2 Credits)

This course will review the current state of cannabis research methodologies, including the extraction of plant materials, biochemical analysis and isolation of bioactive constituents. This didactic component will also include practical considerations of cannabis chemistry and research applications. Requisite: PCSM 6710, PCSM 6720, PCSM 7700

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

## Pharmaceutical Outcomes Research (PHOR)

PHOR 7570 - Special Topics in Outcomes Research (1 Credit)

This course involves identification, analysis and discussion of contemporary issues in the field of pharmaceutical outcomes research. Format and topics vary depending on the focus of the course for each semester. Prereq: Graduate standing and consent of instructor.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

PHOR 7611 - Applied Cost-Effectiveness Modeling (4 Credits)

This is an applied course in cost-effectiveness analysis. This course will apply the theory and methods learned in HSMP 6609 to develop competency in conducting cost-effectiveness analysis in health and medicine. Students will complete their own cost-effectiveness model. Prerequisite: HSMP 6609 Cost Benefit/Cost Effectiveness Analysis. Restrictions: Successful completion of HSMP 6609 or permission of primary instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

PHOR 7613 - Pharmaceutical Economics (3 Credits)

An introduction to pharmaceutical economics with emphasis on the role of pharmaceuticals and the pharmaceutical industry, regulation, and pricing. This course will also cover modeling microeconomic data including costs and health state preferences for advanced economic evaluation using primary data sources.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

PHOR 7615 - Pharmacoepidemiology (2-4 Credits)

This course builds upon fundamental concepts and methods of epidemiology, applied to the study of pharmaceuticals. Topics included: the FDA approval process, mechanisms of adverse drug effects, methods and data systems for studying drug-effect relationships, and evaluating published pharmacoepidemiology studies. Crosslisted: EPID 7615. Prereq: EPID 6630, 2-course biostatistics series (either BIOS 6601-6602 or BIOS 6611-6612) Restrictions: Consent of instructor to determine level of credit to be taken.

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

PHOR 7620 - Applied Pharmaceutical Outcomes Research Methods (2 Credits)

Students completing this course will be able to identify and write a clinical research question; identify variables for analyses; complete intermediate statistical analyses to answer their research question; write-up their study as a scientific manuscript; and present their research orally. Prerequisite: Passed PHRD 6065 or EPID 6626 and BIOS 6601/6611) or special permission of primary instructor. Crosslisted with PHRD 7810.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHOR 7621 - Database Research Methods (2 Credits)**

This course, the first of a two-course sequence, will cover theoretical and methodological foundations of database research. Topics will include observational research methods, data management and analysis considerations, and an overview of databases available for use in health services research. Restrictions: Currently enrolled in a graduate-level program of study.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHOR 7622 - Applied Database Research (3 Credits)**

Course is second of two-course sequence in database research, providing students opportunity to apply theory and methods learned in PHSC7621 to develop competency in conducting research using secondary datasets. Students conduct their own database project and complete manuscript describing findings.. Prereq: PHSC 7621, BIOS 6611/6602 or approval of course director. Restrictions: Currently enrolled in a graduate-level program of study.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHOR 7911 - Pharm Outcomes Research Practicum (2 Credits)**

This course focuses on team-based research in pharmaceutical outcomes, building on prior didactic courses. Specific attention is given to the procedures, methods, and measurement specific to conducting successful empirical pharmaceutical outcomes research. Research topics will vary. Prereq: EPID 6630, 2-course biostatistics series (either BIOS 6601-6602, or BIOS 6611-6612), completion of preliminary exams Restrictions: Consent of instructor to determine completion of prerequisite coursework and readiness for practicum.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**PHOR 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in pharmaceutical sciences. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Pharmaceutical Sciences (PHSC)

**PHSC 5915 - Modern Drug Design & Drug Action (2 Credits)**

The course explores the modern drug discovery and development processes and, utilizing clinical examples, establishes the ability of students to rationalize and predict how the chemical structure of a drug influences its medicinal properties and routes of metabolism. Crosslisted with PHRD 5915.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 6015 - Pharmacokinetics (3 Credits)**

The influence of physiological and pathophysiological factors on drug levels is considered. Knowledge gained allows students to calculate appropriate dosing of drugs in patients and anticipate how drug doses should be adjusted in disease and the presence of other drugs. Crosslisted with PHRD 6015.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHSC 6710 - Cannabis Therapeutics Neurology/Mental Health (2 Credits)**

The evidence-based risks and benefits of cannabis and/or FDA-approved and investigational cannabis-derived drugs will be discussed in epilepsy and movement disorders, sleep, and migraine. Cannabis use in various mental health conditions will be presented, including depression, anxiety, post-traumatic stress, and schizophrenia. Requisite: Crosslisted with PCSM 6710.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHSC 6720 - Cannabis Therapeutics: Pain, Oncology (2 Credits)**

The evidence-based risks and benefits of cannabis and/or FDA-approved and investigational cannabis-derived drugs will be discussed in management of various types of pain, and their supportive role in oncology. Patient safety considerations, including drug-cannabis interactions, and at-risk populations with cannabis use will be presented.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 6730 - Legal & Regulatory Issues in Cannabis Medicine (2 Credits)**

The legal history of cannabis and industrial hemp in the United States and the current diversity of state and federal regulations governing the sale and use of cannabis and cannabis-derived medicinal and retail products will be discussed, as well as how these regulations influence basic science and clinical research on cannabis.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 6856 - Master's Independent Study (1-4 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

**PHSC 6860 - Pract-Pub Health (1-18 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

Additional Information: Colorado State University.

**PHSC 6925 - Medicinal Chemistry (2 Credits)**

This course examines the mechanism of action of drugs for several drug classes, providing foundational knowledge of drug classification by chemical structure, mechanism of drug action, how targeted therapies were developed based on knowledge of the molecular target and how adverse effects can often be predicted. Crosslisted with PHRD 6925

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 6950 - Master's Thesis BMSC (1-10 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

Additional Information: Report as Full Time.

**PHSC 6951 - Master's Research in Pharmaceutical Sciences (1-6 Credits)**

Students in the MS in Pharmaceutical Sciences program will conduct independent research under a faculty mentor in their specialty area of cannabis science & medicine, clinical pharmacokinetics & pharmacodynamics, drug discovery, molecular & systems toxicology, or pharmaceutical biotechnology & drug delivery.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PHSC 6990 - Capstone Project in Pharmaceutical Sciences (3 Credits)**  
Students in the MS in Pharmaceutical Sciences program will complete a capstone, literature review paper under faculty mentor guidance in their specialty area of cannabis science & medicine, clinical pharmacokinetics & pharmacodynamics, drug discovery, molecular & systems toxicology, or pharmaceutical biotechnology & drug delivery.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PHSC 7025 - Pharmacogenomics (2 Credits)**

This course provides students with an understanding of how genetic factors influence drug disposition, response, and adverse effects.

Knowledge gained from this course will enhance students' ability to apply genetic information to pharmacy practice and select the most appropriate therapeutic intervention(s). Crosslisted with PHRD 7025.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHSC 7305 - Hands On Proteomics Workshop (1 Credit)**

4-day intensive hands-on workshop designed to provide comprehensive view of proteomics. Appropriate for individuals with little/no experience in mass spectrometry and/or high performance liquid chromatography. Participants learn introductory proteomics science and applicable protocols/technologies through extensive hands-on experience.

Prerequisite: IDPT 7811, IDPT 7812, IDPT 7813, IDPT 7814, IDPT 7815 and Instructor permission.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHSC 7310 - Fundamentals of Pharmaceutical Sciences (3 Credits)**

Core course explores key aspects of Pharmaceutical Sciences. Major themes will focus on macromolecular interactions, pharmaceuticals, pharmacokinetics, pharmacodynamics, apoptosis, signal transduction and immunology. Critical thinking and problem solving skills will be emphasized via lectures, discussions and computer-based data analyses. Crosslisted with TXCL 7310.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHSC 7320 - Physical Pharmacy & Pharmaceutical Sciences (3 Credits)**

This course is designed to provide students with a thorough overview of physical chemical principles vital to Pharmaceutical Sciences; a course for someone whose research efforts will involve pharmaceutical development and/or the evaluation of drugs. Cross list with TXCL 7320.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHSC 7326 - Clinical Pharmacokinetics & Pharmacodynamics Journal Club (1 Credit)**

This course will comprise discussions and presentations of contemporary journal articles, or research in progress related to clinical pharmacokinetics and pharmacodynamics. Two-term course, 1 credit each term, must attend both terms to receive grade. Two term course, 1 credit each term, must attend both terms

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**PHSC 7328 - Computational Design in Drug Discovery (3 Credits)**

This course covers the theory and application of computational modeling to drug design and development. Students will be trained in multiple computational techniques and will perform an independent drug design project to be presented at the end of the course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHSC 7330 - Development of Drugs and Biologics (3 Credits)**

A survey course designed to introduce students to pharmacokinetic and pharmacodynamics principals used in drug research and development by faculty of the Skaggs School of Pharmacy, Department of Pharmaceutical Sciences. The Phoenix Winnonlin Computer software, is used to complete homework. Cross listed with TXCL 7330

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHSC 7340 - Molecular Biophysics and Enzymology (2 Credits)**

This course will present advanced topics in thermodynamics, kinetics, macromolecular interactions, and enzymology. Underlying theory and applications as found in the literature will be discussed. It is intended for those with a specialized research interest in the subject. Prerequisite: For students in the Pharmaceutical Sciences with research interest in subject

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHSC 7341 - Grad Phys/Path Therap 2 (3 Credits)**

Grading Basis: Letter Grade

**PHSC 7345 - Nanotechnology & Drug Delivery (2 Credits)**

Course presents physicochemical and biological principles of drug delivery including drug delivery system design for various applications. In addition it will address principles of nanotechnology related to the design of nanosize delivery systems intended for drug delivery, imaging and diagnosis. Restrictions: Student should be enrolled in a graduate or equivalent program. Crosslisted: BIOE 7345

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHSC 7350 - Proteins (3 Credits)**

Chemical and physical basis for protein structure, folding, function and stability; role of molecular dynamics, use of molecular simulations in investigations of protein-ligand and protein interactions; methods and principles of protein/peptide purification and enzyme catalysis, including electron transfer and mutagenesis. Crosslisted: BMST 7350.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHSC 7353 - Pharmacogenetics (2 Credits)**

Grading Basis: Letter Grade

**PHSC 7370 - Business Issue/Phrm Biot (2 Credits)**

Grading Basis: Letter Grade

**PHSC 7400 - Ethical Issues in Toxicology & Pharmaceutical Sciences (1 Credit)**

The purpose of this course is to expose students to ethical issues in the fields of toxicology and pharmaceutical sciences. Emphasis will be placed on research conduct, animal use, and other timely issues relevant in these fields. Crosslisted: TXCL 7400.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHSC 7405 - Hands-On Metabolomics Workshop (1 Credit)**

A 4-day intensive hands-on workshop that provides a comprehensive view of metabolomics. Participants will learn introductory metabolomics science and applicable protocols/technologies. Appropriate for individuals with little to no experience in mass spectrometry and who will use this technology in their research. Requisite- One year of full-time biomedical graduate study and instructor permission

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHSC 7452 - Introduction to Clinical Pharmacology (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery and development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Requisite:

Permission of Course Director.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**PHSC 7453 - Introduction to the Pharmaceutical Industry (2 Credits)**

Elective hybrid between lectures offered through online learning and live interactive courses. Class attendance on campus for 7 weekly classes and 8 others will be completed online. Students will be required to participate in a live (in-person) or teleconferenced (Zoom) presentation. See syllabus for more information.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHSC 7472 - Grad Med Chemistry I (3 Credits)**

Grading Basis: Letter Grade

**PHSC 7473 - Gr Medicinal Chemistry 2 (3 Credits)**

Grading Basis: Letter Grade

**PHSC 7480 - Fundmntl Drug Dev/Action (5 Credits)**

Grading Basis: Letter Grade

**PHSC 7565 - Applied Statistics for Pharm Science and Toxicology (2 Credits)**

Students will learn several basic statistical techniques for analyzing data including when and how to use them, the appropriate assumptions for these methods, and how to clearly articulate their statistical results in the context of toxicology and pharmaceutical sciences studies. Prerequisite: Pharmaceutical Sciences and Toxicology graduate students

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHSC 7568 - Seminar in the Pharmaceutical Sciences (2 Credits)**

Discusses current literature and research in the pharmaceutical sciences. Requisites: Required for 1st through 3rd year Pharmaceutical Sciences grad students in conjunction with attendance at all Seminars in the Dept. of Pharmaceutical Sciences. (DOPS) Grad Program Seminar Series.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**PHSC 7571 - Prin & Mech Drug Act 2 (4 Credits)**

Grading Basis: Letter Grade

**PHSC 7572 - Principles & Mechanisms of Drug Action 3 (2-4 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 4.

**PHSC 7608 - Molecular Interactions (3 Credits)**

Provides chemical/physical basis for protein structure, folding, function & stability; presents methods/principles of protein/peptide purification & enzyme catalysis including electron transfer & mutagenesis. The role of molecular dynamics & use of molecular simulations in the investigations of protein-ligand/protein-protein interactions. Cross listed with STBB 7608.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 7609 - Biophysics & Spectroscopy (3 Credits)**

This course will teach fundamentals of modern molecular spectroscopies and biophysical techniques as applied to biomolecules and the structural/dynamic information they afford. Cross listed with STBB 7609.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 7649 - Intro Mod Biotechnology (1 Credit)**

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

**PHSC 7650 - Research Rotation Pharmaceutical Sciences (1-10 Credits)**

Research work in pharmaceutical sciences. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHSC 7651 - Pharmaceutical Biotechnology (3 Credits)**

Course covers role of bioengineering in development of pharmaceutical biotechnology products. In particular, the student will learn to apply solution thermodynamics as well as mass and heat transfer concepts to the stabilization/formulation of macromolecules and production of drug delivery systems. Crosslisted: CU Boulder CHEN 5900.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHSC 7653 - Protein Formulation (2 Credits)**

This course will provide instruction in rational design of stable therapeutic protein formulations with emphasis on the practical and mechanistic aspects of developing aqueous solution and freeze-dried formulations. Students will read papers from the literature and participate in critical discussions.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.



**PHSC 7658 - Advanced Topics in Pharmaceutical Sciences (1-5 Credits)**

Considers special topic of current interest in pharmaceutical sciences.

Course may be repeated for credit with the instructor's approval.

Restriction: Consent of Instructor.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**PHSC 7660 - Liposome-based Drug Delivery (2 Credits)**

This literature-based course briefly reviews the fundamental physiochemical characteristics of lipid membranes and then rigorously discusses how these properties are exploited for drug delivery. This course focuses on how current liposome technology overcomes the barriers to successful delivery.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHSC 7665 - Pharmacokinetic Principles & Applications (3 Credits)**

A survey course to introduce students to pharmacokinetic and pharmacodynamics principles used in drug research and development.

Taught by faculty from the School of Pharmacy, Department of Pharmaceutical Sciences. Phoenix Winnonlin Computer software will be used in the course. Cross-listed with TXCL 7665

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHSC 7667 - Population Pharmacokinetic Modeling (3 Credits)**

This course will allow students to gain knowledge, expertise and experience with population pharmacokinetic (PK) and pharmacodynamic (PD) models and software used to perform data analysis. Students will have the opportunity to practice their modeling skills while being introduced to a broad range of relevant approaches. Requisite:

Prerequisite: PHSC 7665 - Pharmacokinetic Principles & Applications

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHSC 7700 - Cannabis Pharmacology & Physiology (3 Credits)**

This course addresses the history, botany, medicinal chemistry and pharmacology of active constituents in cannabis and hemp, with particular emphasis on their interplay with endogenous cannabinoids and the endocannabinoid system of the body. FDA-approved cannabinoid products and synthetic cannabinoids will also be discussed.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHSC 7705 - Scientific Writing in Cannabis Science & Medicine (1 Credit)**

This practical course will cultivate the students' ability to communicate scientific and regulatory information to appropriate audiences, ranging from the general public to the cannabis industry and state agencies who regulate cannabis.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 7710 - Chemical Analysis of Cannabis (2 Credits)**

This course will review the current state of cannabis research methodologies, including the extraction of plant materials, biochemical analysis and isolation of bioactive constituents. This didactic component will also include practical considerations of cannabis chemistry and research applications.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 7711 - Chemical Analysis of Cannabis Laboratory (1 Credit)**

This laboratory companion course of PHSC/PCSM 7710 will provide practical experience with the extraction of plant materials spiked with cannabinoid reference standards, separation techniques, isolation and quantification of bioactive compounds, and mass spectrometry methods for compound identification. Requisite: PHSC 7710 or PCSM 7710 must be taken first or concurrently

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHSC 7720 - Seminar in Cannabis Science & Medicine (1 Credit)**

This course allows students to practice critical thinking about literature pertinent to the pharmaceutical sciences, with a focus on cannabis science and medicine. The overall goal is to broaden students' scientific knowledge and provide practical experience in the critical evaluation and discussion of current and historical literature.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in pharmaceutical sciences. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Pharmacology (PHCL)

**PHCL 7600 - Frontiers in Pharmacology (1 Credit)**

Course is intended to introduce students to cutting-edge pharmacology research and to the range of research opportunities available within the Pharmacology Training Program. Pharmacology Department faculty presentations will focus on cellular signaling, molecular mechanisms of drug actions, structure-based drug design.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7602 - Pharmacology Journal Club (1 Credit)**

The overall goal of the course is to teach the students to read and discuss current literature in their field and to gain a comprehensive view of the directions that lead to high-impact research. Students will present and discuss papers.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring.

**PHCL 7605 - Responsible Conduct of Research (1 Credit)**

The Department of Pharmacology in the University of Colorado School of Medicine organizes and offers an interactive course during the fall semester entitled "Responsible Conduct of Research". The course is designed to inform students, trainees and faculty to the NIH requirements for ethical and responsible research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.



**PHCL 7606 - Receptors and Cell Signaling (3 Credits)**

This elective course presents an in-depth treatment of the role of receptors and signal transduction systems in the regulation of cell functions through faculty-presented lectures and student-led discussions of current literature. Prereq: IDPT 7811, 7812, 7813, 7814, 7815.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHCL 7609 - Statistical Methods in Pharmacology (3 Credits)**

Introduction to basic statistical methods utilized to analyze scientific data. The goal of course is to provide students in the biological/health sciences with the knowledge/skills necessary to analyze/interpret data which is essential for communicating scientific results. Restriction: Restricted to Pharmacology PhD Students. Crosslisted with BIOS 6606.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7610 - Survey of Bioinformatics Methods (2 Credits)**

What is Bioinformatics and why study it? How is large-scale molecular biology data generated, where and how can researchers gain access to it, and what computational analyses are possible? Crosslisted: CPBS 7710.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHCL 7611 - Bioinformatics I (4 Credits)**

What is Bioinformatics and why study it? How is large-scale molecular biology data generated, where and how can researchers gain access to it, what computational analyses are possible and computational techniques for solving inference problems in molecular biology? Prereq: Bioinformatics PhD students or consent of instructor. Crosslisted: CPBS 7711.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHCL 7612 - Bioinformatics II (4 Credits)**

Inference problems and computational techniques for molecular biology, with emphasis on machine learning approaches. Use of computational induction techniques on information extraction from biomedical literature, inference of biochemical networks from high-throughput data, and prediction of protein function. Prereq: CPBS 7711. Crosslisted: CPBS 7712.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHCL 7613 - Pharmacology Journal Club (1 Credit)**

The overall goal of the course is to teach the students to read and discuss current literature in their field and to gain a comprehensive view of the directions that lead to high-impact research. Students will present and discuss papers.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring.

**PHCL 7614 - Membrane Biophysics (2 Credits)**

Lectures and homework on ionic mechanisms and underlying cellular excitability, especially in the central nervous system. Descriptive mathematics, pharmacology and molecular biology will be stressed. An introductory application to real-life problems using the NEURON simulation environment will be taught. Prereq: NRSC 7600 or equivalent. Restrictions: 2nd year students with approval of instructor. Crosslisted: NRSC 7614.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHCL 7615 - Grant Proposals in Pharmacology (1 Credit)**

We will learn principles of good grantsmanship and hone our skills in homework assignments and discussions. Our goal is to enable a better learning experience during comps proposal writing, by gaining the tools for optimized self-assessment. Prereq: IDPT 7811, IDPT 7812, IDPT 7813, IDPT 7814, IDPT 7815.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**PHCL 7620 - Principles of Pharmacology (6 Credits)**

Lectures are provided in the general areas of pharmacokinetics, receptor theory, structure-activity relationships, drug metabolism, basic pharmacological mechanisms with a particular emphasis on systems such as the nervous system and cardiovascular system, as well as cancer and microbial chemotherapy. Prereq: IDPT 7811, 7812, 7813, 7814, 7815.

Restriction: Consent of Course Directors.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**PHCL 7622 - Principles of Pharmacology for MSTP Students (1 Credit)**

Lectures are provided in the general areas of pharmacokinetics, receptor theory, structure-activity relationships, drug metabolism, and basic pharmacological mechanisms with a particular emphasis on systems such as the nervous system and cardiovascular system, as well as cancer and microbial chemotherapy. Prereq: IDPT 7811, 7812, 7813, 7814, 7815, PHCL 6000. Restriction: Consent of course directors.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHCL 7630 - Molecular Bio Lab Tech PHCL (3 Credits)**

Grading Basis: Letter Grade

**PHCL 7650 - Research in Pharmacology (1-5 Credits)**

Research work in pharmacology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHCL 7660 - Advanced Topics in Pharmacology (1 Credit)**

An in-depth discussion-oriented course for advanced students focusing each term on specific topics associated with pharmacological studies including new insights about drug addiction, alcohol actions and alcoholism memory models and LTP, rational approaches to cancer chemotherapy, cardiovascular physiology. Prereq: PHCL 7600, PHCL 7606, PHCL 7609, PHCL 7620, PHCL 7650. Coreq: IDPT 7811, 7812, 7813, 7814, 7815.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**PHCL 7801 - Rigor and Reproducibility in Biomedical Research (1 Credit)**

Course will integrate the concepts of rigor, repeatability, and reproducibility by combining both "wet" and "dry" lab components focused on teaching these concepts and laboratory skills.

Grading Basis: Pass/Fail Only

Typically Offered: Spring.

**PHCL 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in pharmacology. Prereq: Consent of Instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Pharmacy (PHAR)

**PHAR 4600 - Pharmacotherapeutics I (4 Credits)**

Grading Basis: Letter Grade

**PHAR 6250 - Instructional Methods II (1 Credit)**

Grading Basis: Pass/Fail Only

**PHAR 6985 - Pharmacotherapy 4 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: cardiology 2, infectious diseases 1. Restrictions: Department Consent Required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHAR 7742 - Pharmacotx -Bone Conn Tis (0.5 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for patients with bone and connective tissue disorders. Course may include case-based, team-based learning to provide opportunities for the application of clinical skills & knowledge in patient care. Prerequisites:

All students: PRDO 7700; For ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300 in addition to above courses. /Notes:Eligible Students: - NTPD New students (those admitted fall semester 2014) and later) - ITPD New students

Grading Basis: Letter Grade

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PHAR 7856 - Independent Study (2 Credits)**

Grading Basis: Pass/Fail Only

## Pharmacy Doctorate (PHRD)

**PHRD 5001 - Introduction to Pharmacy (0.6 Credits)**

Course introduces students to how the pharmaceutical, chemical and biological sciences relate to each other and the practice of Pharmacy. Experience gained from this course allows students to comprehend how fundamental sciences integrate to form a foundation for pharmacy practice. Restrictions: Department Consent Required

Grading Basis: Pass/Fail Only

Typically Offered: Fall.

**PHRD 5010 - IPPE Community (2 Credits)**

This is the first in a series of experiential-based courses, providing 80 hours of community pharmacy practice experience. Students will participate in all facets of community pharmacy practice, with a particular focus on the development of communication and professionalism skills.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring.

**PHRD 5015 - Mechanisms of Disease (3 Credits)**

Introduces students to concepts in cell biology and pathophysiology that form a foundation for understanding mechanisms by which drugs act or intervene with disease processes. Knowledge gained from course sets a foundation for understanding disease development and progression in subsequent courses. Restrictions: Department Consent required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 5025 - Applied Biological Chemistry (3 Credits)**

Course builds upon student knowledge of biochemistry to explore applications of biochemistry to diseases, drug actions, and drug development. Knowledge gained from this course is used as a foundation for understanding the rationale for the therapeutic uses of drugs.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 5045 - Pharmacy Law and Regulatory Standards (3 Credits)**

Course introduces students to pharmacy laws and regulations. Students are able to carry out their intern duties in accordance with professional guidelines and regulatory standards. The course also explores how to apply ethical and professional principles in various healthcare settings. Restrictions: Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 5055 - Pharmacy Practice Fundamentals & Drug Information (4 Credits)**

Course provides students with tactics necessary to perform dispensing duties in most pharmacy settings. Fundamentals of the practice of drug information are introduced. Pharmacy practice and drug information fundamentals are presented with the context of the history of pharmacy and contemporary pharmacy practice. Restrictions: Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 5065 - Patient-Centered Communication 1 (3 Credits)**

During this two-course learning series, students develop skills to communicate effectively with patients, caregivers and healthcare providers to facilitate optimal patient outcomes. These courses cover all aspects of professional communication, including gathering, organizing, conveying and documenting patient-related information.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 5075 - Pharmacotherapy Self-Care 1 (3 Credits)**

Course prepares students to be able to 1) collect appropriate patient data to make an assessment for self-care (e.g. nonprescription products), 2) conduct a patient-centered assessment, and 3) design, implement, evaluate and adjust a patient-centered self-care plan. Restriction: Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 5896 - Med Spanish (INTERM) (2 Credits)**

Grading Basis: Pass/Fail Only

**PHRD 5915 - Modern Drug Design & Actions (2 Credits)**

This course explores the modern drug discovery and development processes and utilizes clinical examples to teach students to rationalize and predict how the chemical structure of a drug dictates its medicinal properties and routes of metabolism. Department consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5925 - Pharmaceutics (4 Credits)**

Students introduced to biophysical and chemical considerations in development of pharmaceuticals and products and compounding various dosage forms, principles of parenteral drug preparation and administrations. Knowledge gained allows students to understand formulation development and optimize dosage forms for individual patients. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5935 - Pharmacology & Toxicology (2 Credits)**

Using the nervous systems as a model, the course introduces students to the mechanisms by which drugs produce therapeutic effects and side effects. The mechanisms of drug toxicity and how toxicity can be prevented and treated will be explored. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5965 - Patient-Centered Communication 2 (3 Credits)**

During this two-course active learning series, students develop skills to communicate effectively with patients, caregivers and healthcare providers to facilitate optimal patient outcomes. These courses cover all aspects of professional communication, including gathering, organizing, conveying and documenting patient-related information. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5975 - Pharmacotherapy Self-Care 2 (2 Credits)**

Course prepares students to be able to 1) collect appropriate patient data to make an assessment for self-care (e.g. nonprescription products), 2) conduct a patient-centered assessment, and 3) design, implement, evaluate and adjust a patient-centered self-care plan. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 5985 - Pharmacotherapy 1 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: gastrointestinal, pulmonology, dermatology, ophthalmology, otic diseases. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6015 - Pharmacokinetics (3 Credits)**

The influence of physiological and pathophysiological factors on drug levels is considered. Knowledge gained allows students to calculate appropriate dosing of drugs in patients and anticipate how drug doses should be adjusted in disease and the presence of other drugs.

Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6065 - Evidence-based Medicine & Literature Evaluation (3 Credits)**

An introduction and step-wise approach to evidence-based medicine. Students understand commonly-used statistical tests and evaluate statistical results for statistical versus clinical significance. Students demonstrate by answering short drug information questions, presenting a journal club and writing a drug information paper. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6085 - Pharmacotherapy 2 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions.

Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: nephrology, cardiology 1. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6095 - Pharmacotherapy 3 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions.

Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: endocrinology, gynecology, urology. Department Consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 6900 - Experiential IPE (1 Credit)**

This experiential-based course aligns with the CU Center for IPE. Students complete interprofessional simulation training (Clinical Transformations) at the Center for Advancement of Professional Education and practice with a clinical team during the IP Provider IPPE Program (Clinical Integrations).

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**PHRD 6910 - IPPE Health System (2 Credits)**

This experiential-based course provides 80 hours of health-system pharmacy practice, focusing on the delivery of patient care and systems used to provide care to multiple patients. Course further develops professionalism, communication, and skills needed for advanced experiential training.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**PHRD 6915 - Seminar Research 1 (1 Credit)**

Students will apply their ability to retrieve, evaluate, and utilize professional information in a critical and scientific manner. Students independently determine how to best solve a pharmacy-related question using scientific principles, and present their findings to a large audience.

Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6925 - Medicinal Chemistry (2 Credits)**

This course is an application of medicinal chemistry concepts using clinically relevant case studies, designed to examine mechanism(s) of drug action and resistance, structure activity relationships, and other concepts related to the pharmacology and clinical use of modern drugs.

Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6945 - Public Health & Health Outcomes 1 (3 Credits)**

Introduces students to health care delivery systems and discusses the social, political, economic factors that influence these systems. Students will link various medication use systems to their role in development and participation in health promotion, disease prevention, public health policy. Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6965 - Clinical Problem Solving Skills (2 Credits)**

This course builds upon the principles and skills from PHRD 5055/6065 and includes application inside and outside the classroom of drug information, effective search strategies and literature evaluation, critical appraisal of scientific literature, and applying evidence in clinical practice.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6985 - Pharmacotherapy 4 (5 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: cardiology 2, infectious diseases 1. Restrictions: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 6995 - Pharmacotherapy 5 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: psychiatry, neurology. Restriction: Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7015 - Seminar Research 2 (1 Credit)**

Students will apply their ability to retrieve, evaluate, and utilize professional information in a critical and scientific manner. Students independently determine how to best solve a pharmacy-related question using scientific principles, and present their findings to a large audience. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7025 - Pharmacogenomics (2 Credits)**

Course provides students with an understanding of how genetic factors influence drug efficacy. Knowledge gained from this course enhances students' ability to select the most effective therapeutic intervention. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7045 - Public Health & Health Outcomes 2 (3 Credits)**

Course concepts are medication safety, drug usage, pharmacoeconomics, and pharmacoepidemiology. Students analyze medication systems by using population data and risk management strategies, critically evaluate economic literature on a drug, and compare pharmacy and non-pharmacy treatments on economic and humanistic outcomes. Department consent required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7055 - Pharmacy Management (2 Credits)**

The course provides an introduction to management in community pharmacy practice, hospital pharmacy management, and other business and management skills needed to be successful in a variety of different practice settings. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7085 - Pharmacotherapy 6 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: infectious diseases 2. Department consent required.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7095 - Pharmacotherapy 7 (4 Credits)**

This 7 course series includes pathophysiology, pharmacology, and therapeutics of a range of system based physiological conditions. Standards of care, controversial issues, pharmacotherapy advances, and patient management are covered. Areas covered in this course: hematology, oncology, rheumatology, transplantation. Department consent required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7801 - Principles of Clinical Pharmacology (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery & development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Prerequisite: P3 students or permission of course director.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7802 - Principles of Clinical Pharmacology 2 (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery & development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Requisite: P3 students or permission of course director.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7805 - Honors Thesis Study Course (2 Credits)**

Students in the Honors Program may use this elective course to complete specific outcomes of their Honors project over 1-2 semesters. The student/mentor must complete the Approval and Proposal forms (found on SOP website) prior to enrolling. Requirement: Department consent.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

**PHRD 7808 - Introduction to the Pharmaceutical Industry (2 Credits)**

Course provides a broad background on the pharmaceutical industry. Reviews of major pharmaceutical company functions will be covered, Emphasis will be placed on clinical development and areas of opportunity for those with a pharmacy or pharmaceutical sciences background.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7810 - Applied Pharmaceutical Outcomes Research Methods (2 Credits)**

Students completing this course will be able to identify and write a clinical research question; identify variables for analyses; complete intermediate statistical analyses to answer their research question; write-up their study as a scientific manuscript; and present their research orally.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7812 - Seminar in Pharmaceutical Sciences (2 Credits)**

Provides practical experience in the evaluation and discussion of research literature. Students will prepare a seminar and participate in scientific discussions. Students who are interested in broadening knowledge in pharmaceutical science, drug delivery, and improving their speaking skills will benefit.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7815 - Physical Assessment/Examination in Pharmacy (2 Credits)**

This course is designed to provide students with functional knowledge and skills in the area of physical assessment and will aid students in enhancing the assessment of disease and drug therapy in a variety of practice settings.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7818 - Innovation and Entrepreneurship (2 Credits)**

Students will have the opportunity to gain an understanding and recognize their creative abilities, promote innovation in themselves and others, and demonstrate productive thinking. Able to recognize a gap in healthcare, create a solution, and tell story of their solution.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7830 - Infectious Diseases Elective (2 Credits)**

This course will address the pharmacology and appropriate clinical use of agents used in the treatment and management of selected infectious diseases. The course will also focus on pharmacodynamics of antimicrobial agents, antibiotic stewardship, antibiotic resistance, and statistics.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7835 - Advanced Cardiovascular Pharmacotherapy (2 Credits)**

The purpose of this course is to provide a more comprehensive and in-depth background in cardiovascular pharmacotherapy for students interested in, or planning to practice in, settings where the care of patients with cardiovascular disease is emphasized.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7836 - Ambulatory Care Elective (2 Credits)**

Students will be introduced to emerging roles for pharmacists in the primary care setting, will gain further knowledge and skills regarding chronic disease management, and will be introduced to billing, regulatory, policy, and legal considerations for this practice environment.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7840 - Caring for the Psychiatric Patient (2 Credits)**

This course builds on Pharmacotherapy 5 by addressing clinical, social, economic and ethical aspects of psychiatric care. Student teams examine psychiatric disease states from the patient's point of view, evaluate patient cases, write therapeutic plans, and role play patient education.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7842 - Medical Use of Cannabis (2 Credits)**

Course will address the pharmacology and appropriate medical use of cannabis used in the treatment and management of selected disease states. Course will also focus on the pharmacokinetics, pharmacodynamics, legal aspects, special populations and patient information (safety) of cannabis.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7844 - Special Topics in Compounding (2 Credits)**

Course will provide students with an understanding of principles and practices involved in clinical aspects of pharmacy compounding. Students will utilize readings, case studies, class discussion, outside-class assignments, and written evaluation to learn how pharmacy compounding may solve medication-related problems. Department Consent Required

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7850 - Geriatric Pharmacy Elective (2 Credits)**

This course is intended to provide the student with an advanced understanding of pharmacotherapy in older adults as well as common medical, psychological, and social issues encountered when caring for older adults. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7854 - Database Mgmt Systems Independent Study (3 Credits)**

Designed to give students a solid foundation in practical database design and implementation. This study will help students develop database design skills that have valuable and meaningful application in clinical informatics settings.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7855 - Independent Study (1-4 Credits)**

Prerequisite: P3 status. Per Department Chair approval.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 4.

Typically Offered: Fall, Spring.

**PHRD 7856 - Independent Study (2 Credits)**

Prerequisites: P3 status. Per Curriculum Committee approval.

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Spring.

**PHRD 7857 - Compounding Pharmacy Elective (2 Credits)**

An elective course to offer compounding skills for pharmacy students.

Prereq: P1-P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.



**PHRD 7858 - Managed Care Elective (2 Credits)**

The goal of the Managed Care Independent study at Kaiser Permanente Colorado is to provide the student with various managed care pharmacy experiences, both didactic and experiential. Prerequisite: P3 status  
Grading Basis: Pass/Fail Only  
Typically Offered: Fall, Spring.

**PHRD 7860 - Special Topics in Integrated Health & Medicine (2 Credits)**

This course is designed to develop a broad knowledge base in the field of Integrated Health and Medicine. This course will cover common vitamins and minerals, herbal products, and bio-identical hormones, and core domains and discussions of regulatory issues. Prerequisite: P1-P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7862 - Global Health Disparities (2 Credits)**

Key issues in the struggle of decreasing global health inequality are medication access and affordability. This course provides expertise in these areas as well as prevention, screening, and treatment of communicable and non-communicable diseases affecting patients in resource poor areas.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PHRD 7865 - Film and Healthcare (2 Credits)**

This elective is designed to encourage pharmacy students to reflect upon the humanistic issues associated with health, disease and treatment through the lenses of film and literature.

Grading Basis: Letter Grade

Typically Offered: Spring, Summer.

**PHRD 7870 - Pediatric Pharm Practice (2 Credits)**

This course will be offered to students interested in developing and fostering their knowledge and assessment of childhood diseases and pharmacotherapy. Clinical pharmacy specialists and staff from the Children's Hospital of Denver will teach this course. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7880 - Women's Health Elective (2 Credits)**

This course will address the clinical, social, economic, and ethical aspects of women's health care. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7885 - Acute Care Pharmacotherapy (2 Credits)**

Pharmacology and appropriate clinical use of agents used in the treatment of selected acute disorders found in hospitalized patients. The course will also focus on the comprehensive nature of these acute disorders. Recent advances in pharmacotherapy, patient-specific management strategies, and controversial issues will be included and emphasized. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7890 - Advanced Oncology Pharmacy (2 Credits)**

Students will learn pathophysiology and treatment of solid organ and hematologic malignancies, practical use of antineoplastic agents, and provision of supportive care for patients of cancer. Prerequisite: PHRD 6750.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7895 - Beginning Medical Spanish (2 Credits)**

This Beginning Medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with conversational Spanish and medical vocabulary in various pharmaceutical contexts. Language learning is both academic and experiential. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PHRD 7896 - Intermediate Med Spanish (2 Credits)**

This intermediate medical Spanish course, tailored for pharmacy students, is designed to allow students to become comfortable with intermediate conversational Spanish and medical vocabulary in various pharmaceutical context. Language learning is both academic and experiential. Prerequisite: P3 status.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PHRD 7905 - Advanced IPPE (6 Credits)**

Students are placed in a 6-week, full-time (40 hours per week) patient care experience in which they can begin to apply their didactic knowledge. In this advanced IPPE students demonstrate competency to meet pre-APPE core performance domains and abilities. Requirements: Department consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7965 - Health Care Informatics (2 Credits)**

Course provides introductory content about informatics topics including a working understanding of knowledge systems for students to be able to manage medication use systems to optimize patient and population outcomes. Requirements: Department consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 7995 - Clinical Capstone (6 Credits)**

Course is designed to be a capstone that integrates essential core pharmacy practice topics. The philosophy of this course is to facilitate student learning, and holding students accountable for prior learning in an integrated manner using complex patient scenarios. Requirements: Department Consent required

Grading Basis: Letter Grade

Typically Offered: Spring.

**PHRD 8045 - AdvPharPracExp - Medication Therapy Management (3 Credits)**

Three-week rotation; 40 hrs weekly. This experience will take place in a community pharmacy practice setting. Students will participate in medication therapy reviews, pharmacotherapy consults, anticoagulation management, and other clinical services that optimize therapeutic outcomes for individual patients. Requirement: Department consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**PHRD 8055 - AdvPharPracExp - Elective (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in various practice settings. Students may participate in various activities that focus on medication-related problems dealing with various populations, with or without direct patient contact. Requirement: Department consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PHRD 8065 - AdvPharPracExp - Ambulatory Care (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in an ambulatory care, multidisciplinary practice setting. Practice sites may include hospital-based clinics, physician group practices, and community or public health clinics that provide health care directly to patients.

Requirement: Department consent required.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PHRD 8075 - AdvPharPracExp - Community (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in a community pharmacy practice setting. Practice sites include independent, large chain or retail pharmacies that provide a variety of services, including administration of immunizations and health/wellness screenings. Requirement: Department Consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PHRD 8085 - AdvPharPracExp - Hospital/Health-System Pharmacy (6 Credits)**

Six week rotation; 40 hrs weekly. This experience will take place in an inpatient practice setting. Students will be exposed to adult patients with a variety of disease states, and participate in other institutional activities related to clinical pharmacy services. Requirement: Department consent required

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

## Pharmacy Doctorate (PRDI)

**PRDI 7000 - US Pharmacy Prac Fund (2 Credits)**

This course provides students with the tactics necessary to perform dispensing duties in most US pharmacy settings and systems. The fundamentals of the practice of drug information are introduced.

Prerequisites: Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 7100 - Pt Centered Clin Comm (2.5 Credits)**

This course is designed to help students develop skills to communicate effectively with patients, caregivers and healthcare providers to facilitate the achievement of optimal patient outcomes. Prerequisites: Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 7150 - Med Term & Lab Interp (0.5 Credits)**

This course provides a review of medical terminology and laboratory interpretation with an emphasis on US pharmacy and medical terms and abbreviations. Students will also review the top 100 medications prescribed in the United States. Prerequisites: Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 7300 - Intro Phcy Pract Exp I (2.5 Credits)**

Course designed to provide students with opportunities to practice skills and knowledge acquired from courses and apply them in various practice settings and with various professional groups. Prerequisites: Eligible Students: ITPD

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring, Summer.

**PRDI 7470 - US Phcy Leadership Mgmt (2 Credits)**

Course provides students with an overview of fundamental principles of leadership. Attributes of effective leaders will be identified and discussed.

An emphasis will be placed on identifying and cultivating personal leadership qualities to use throughout their pharmacy education and career. Prerequisites: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300. / Notes: Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 7480 - US Phcy Law & Reg Stds (1.5 Credits)**

Legal and ethical issues in US pharmacy practice are presented in this course in lectures, case studies and discussion group formats.

Prerequisites: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300. /Notes:

Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 7770 - US Pt Centered Self-Care (2.5 Credits)**

This course will prepare the student to be able to 1) collect appropriate patient data to make an assessment for self-care (e.g. nonprescription products), 2) conduct a patient-centered assessment, and 3) design, implement, evaluate and adjust a patient-centered self-care plan.

Prerequisites: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300 and

PRDO 7700./Notes: Eligible Students: ITPD.

Grading Basis: Letter Grade with IP

Typically Offered: Fall, Spring, Summer.

**PRDI 7900 - Prof Skills Dev (1 Credit)**

Course intended to review and assess a broad range of skills necessary for current and future pharmacy practice. Designed to integrate and apply essential knowledge, skills and attitudes from didactic portion of curriculum are required for a successful professional career.

Prerequisites: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300, PRDO 7800, and All Pharmacotherapy (except Oncology, ID, electives)./Notes: Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 7910 - Prof Skills Portfolio (1.5 Credits)**

This course is a longitudinal course, with the goal to prepare students for the Professional Skills Development course. Students will be expected to practice and refine a variety of skills through collaborative and individual activities and demonstrations. Prerequisites: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300 /Notes: Eligible Students: ITPD.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 1.5.

Typically Offered: Fall, Spring, Summer.

**PRDI 7911 - Professional Skills Portfolio I (1 Credit)**

First of two courses dedicated to the longitudinal Professional Skills Development portfolio. The goal of this course is to address students' individual and home country/community educational and practice needs, assess pharmacy educational competencies and document skill application. Prerequisites: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150. Eligible Students: ITPD

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PRDI 7912 - Professional Skills Portfolio II (0.5 Credits)**

Second of two courses dedicated to the longitudinal Professional Skills Development portfolio. The goal of this course is to address students' individual and home country/community educational and practice needs, assess pharmacy educational competencies and document skill application. Prerequisites: PRDI 7000, PRDI 7100, PRDI 7300, PRDI 7150, PRDI 7911. Eligible Students: ITPD

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PRDI 7920 - Adv Intro Phcy Prac Exp (3 Credits)**

Course designed to provide students with introductory exposure to higher level patient care experiences, engagement in clinical pharmacy practice in a clinical setting, immersion in a clinical environment, and experiences to increase student confidence in their ability to learn.

Prerequisites: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300, PRDO 7800, PRDI 7470, PRDI 7470, PRDI 7480, PRDO 7490, PRDI 7770 and all Pharmacotherapy (except Oncology, ID, electives)./Notes: Eligible Students: ITPD.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDI 8050 - International APPE (1-6 Credits)**

This advanced pharmacy practice experience is an opportunity for international students to train in various clinical practice environments.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**PRDI 8056 - APPE - International Clinical Elective (6 Credits)**

This pharmacy practice experience is an opportunity for international students to train in various clinical practice environments.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

## Pharmacy Doctorate (PRDO)

**PRDO 7323 - ADASM II-III Critical Care (1 Credit)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for critical care patients. Course may include case-based, team-based learning to provide opportunities for the application of clinical skills & knowledge in providing patient care. Prerequisites: PRDO 7700.

Notes: Eligible Students: Elective for NTPD and ITPD students.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDO 7331 - ADASM III-H Pediatrics (1 Credit)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for disorders and issues of pediatric patients. Course may include case-based, team-based learning to provide opportunities for the application of clinical skills & knowledge in providing patient care.

Prerequisites: PRDO 7700. Notes: Eligible Students: Elective for NTPD students and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7361 - ADASM 6-1 Endocrine Dis (1 Credit)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for patients with endocrinology disorders. Course may include case-based, team-based learning to provide opportunities for the application of clinical skills & knowledge in providing patient care. Prerequisites: PRDO 7700; Notes: Eligible Students: NTPD Continuing students (those admitted prior to Fall semester 2014).

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDO 7411 - Drug Information Portfolio I (0.5 Credits)**

First of two courses dedicated to the longitudinal DI portfolio. The portfolio is for students to learn, build competence and gain experience in application of acquired knowledge in DI, developing skills in the retrieval, evaluation, and provision of DI. Prerequisites: All students: PRDO 7400 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150. Eligible Students: NTPD students and ITPD students

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PRDO 7412 - Drug Information Portfolio II (0.5 Credits)**

Second of two courses dedicated to the longitudinal DI portfolio. The portfolio is for students to learn, build competence and gain experience in application of acquired knowledge in DI, developing skills in the retrieval, evaluation, and provision of DI. Prerequisites: All students: PRDO 7400, PRDO 7411 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150. Eligible Students: NTPD students and ITPD students.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PRDO 7419 - Applied Drug Info (DI) Portfolio (0.5 Credits)**

The Applied DI Portfolio is designed for students to build competence and gain experience in application of drug information. Skills will be developed skills in researching, evaluating, and providing DI. Other applied DI skills such as administrative activities, and oral and written communication skills are included. All students: PRDO 7400. ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150. Eligible Students: NTPD students and ITPD students.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDO 7440 - Evid-based Med & Lit Ev (3 Credits)**

This course provides an introduction and step-wise approach to evidence-based medicine. Knowledge gained from this course allows students to search for and understand published medical studies, research designs and statistical tests, and their application to clinical practice. Prerequisites: NTPD students: PRDO 7400; ITPD Students: PRDI 7000, PRDI 7100, PRDI 7150, and PRDI 7350 in addition to above courses.

Notes: Eligible Students: NTPD students and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7490 - Healthcare Informatics (1 Credit)**

This course will focus on fundamentals of pharmacy informatics such as pharmacy automation technology and information systems in various pharmacy settings. Requirements: ITPD Students: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300. NTPD Students: PRDO 7700. Eligible Students: NTPD and ITPD students

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

**PRDO 7492 - Healthcare Informatics II (1 Credit)**

This course will focus on fundamentals of pharmacy informatics with an emphasis on data management, methods and medication-related applications. Prerequisite: ITPD Students: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300, PRDO 7490. NTPD Students: PRDO 7700, PRDO 7490. Eligible Students: NTPD and ITPD

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDO 7495 - Innovation Entrepreneurship (1 Credit)**

This goal of this course is to introduce the student to thinking differently. During the course, the learner will have the opportunity to gain an understanding and recognize their creative abilities, promote innovation in themselves and others, and demonstrate productive thinking.

Upon completion the student should have a better understanding.

Requisite: ITPD Students: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300, PRDO 7490. NTPD Students: PRDO 7700, PRDO 7490. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDO 7560 - Instructional Met & Sem (2 Credits)**

Provides the pharmacist with basic skills in lecture development and presentation. Presentations include development of PowerPoint slides, one short presentation, and a videotaped presentation. Prerequisites: PRDO 7240, PRDO 7460, and 7.5 cr hrs of ADSM Courses/ Notes: Eligible Students: NTPD Continuing students (those admitted prior to Fall semester 2014).

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring, Summer.

**PRDO 7561 - Instructional Methods (1.5 Credits)**

This course is designed to advance the presentation and teaching skills of participants. It focuses on the development of essential components of formal presentations, including learning objectives, outlines, and delivery skills. Prerequisites: NTPD: PRDO 7700, PRDO 7440 and 5 credit hours Pharmacotherapy; ITPD: PRDI 7000, PRDI 7100, PRDI 7300, PRDI 7150, PRDO 7700, PRDO 7440, and 5 credit hours Pharmacotherapy. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7601 - Public Health (1 Credit)**

The purpose of this course is to provide an overview of the US healthcare system with insight into global health issues, their key components and their functional relationships. Requisites: Prerequisites: ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150. Eligible Students: NTPD and ITPD students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7602 - Health Economics (1 Credit)**

This course will cover economic evaluation techniques for pharmaceutical care, and how to use economic, clinical and humanistic outcomes research to understand and assess health care interventions and health care systems. ITPD students: PRDI 7700, PRDI 7100, PRDI 7150 and PRDI 7300. Prerequisites: NTPD students: PRDO 7601. ITPD students: PRDI 7000, PRDI 7100, PRDI 7150, PRDI 7300, and PRDO 7601. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

**PRDO 7621 - Interprofessional Collaborative Practice (0.5 Credits)**

This course develops core competencies in teamwork & collaboration for incoming health professions students. Students will learn in IP teams coached by IP faculty, develop essential communication skills and processes for simultaneous and sequential teams, and provide feedback on individual and team performance to improve IP collaboration. Notes: Eligible Students: - NTPD students. ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDO 7622 - Interprof Healthcare Ethics & Health Equity (0.5 Credits)**

This course develops foundational knowledge and basic practical skills to identify, analyze, and resolve ethical and health equity issues in clinical practice. It integrates interprofessional collaboration and teamwork to teach students ethical theory and reasoning, professional ethics and approaches to healthcare decision-making. Notes: Eligible Students: - NTPD students. ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: .5.

Typically Offered: Fall, Spring, Summer.

**PRDO 7700 - Clin Skills Foundations (2 Credits)**

Combines three components that provide foundation for ADSM courses: 1) orientation to patient assessment and skills development; 2) pharmacokinetics and pharmacodynamics; 3) advanced disease statement management for fluids, electrolytes, and acid-base disorders. Prerequisites: All students: PRDO 7700 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7710 - Pharmacotherapy-CV/Renal (2.5 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for patients with common cardiovascular and renal disorders. Course may include case-based, team-based learning to provide opportunities for application of clinical skills & knowledge in providing patient care. Prerequisites: All students: PRDO 7700 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7720 - Pharmacotherapy-GI/Nutr (2.5 Credits)**

Course combines pathophys, advanced pharmacotherapeutics management, drug-specific pharmacokinetics, patient assessment, & professional skills development for patients with gastrointestinal and nutrition disorders. Course may include case-based, team-based learning to provide opportunities for application of clinical skills & knowledge. Prerequisites: All students: PRDO 7700 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.



**PRDO 7730 - Pharmacotherapy-Inf Dis (2 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, basic patient assessment, & professional skills development for patients with infectious diseases. Course may include case-based, team-based learning to provide opportunities for the application of clinical skills & knowledge in providing patient care. Prerequisites: All students: PRDO 7700 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7741 - Pharmacotherapy-Oncology (2 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, basic patient assessment, & professional skills development for oncology disorders. The course incorporates the principles of active learning using lecture and interactive formats. Prerequisites: All students: PRDO 7700; PRDO 7010 or PRDO 7011 strongly recommended ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7742 - Pharmacotx-Bone Conn Tis (0.5 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for patients with bone and connective tissue disorders. Course may include case-based, team-based learning to provide opportunities for the application of clinical skills & knowledge in patient care. Prerequisites: All students: PRDO 7700; ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7743 - Oncology II (1 Credit)**

This elective course will build on foundational oncology concepts. The course will cover advanced pharmacotherapeutic management for disorders commonly seen in oncology patients. Prerequisites: All students PRDO 7700; For NTPD: PRDO 7741; For ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300 in addition to above courses. Eligible Students: Elective for NTPD and ITPD students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7745 - Palliative Care Pharmacotherapy (1 Credit)**

Palliative Care - This course is designed to introduce the student to palliative care and hospice pharmacy practice. Students will learn the pathophysiology, pharmacotherapeutics, patient assessment, and communication skills necessary to manage pain and other complex symptoms in patients living with serious illness. Requisite: PRDO/PRDM 7700, strongly suggest PRDO/PRDM 7741.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDO 7750 - Pharmacotx-Ger/Neur/Psy (3 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for geriatric, psychiatric, and neurological disorders. Course may include case-based, team-based learning to provide opportunities for application of clinical skills & knowledge in providing patient care. Prerequisites: All students: PRDO 7700; For ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7760 - PhtxEndoHemePulmUroGyn (3 Credits)**

Course combines pathophysiology, advanced pharmacotherapeutics management, patient assessment, & professional skills development for patients with endocrinology, hematology, pulmonology and gynecology/urologic disorders. Course may include case-based, team-based learning to provide opportunities for application of clinical skills & knowledge in patient care. Prerequisite: All students: PRDO 7700; ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7775 - Integrative Health & Medicine (1 Credit)**

Elective course designed to develop a broad knowledge base in the field of Complementary and Alternative Medicine (CAM). Course will cover common vitamins and minerals, herbal products, and bio-identical hormones, touching on core CAM domains and discussions of regulatory issues. Prerequisites: All students: PRDO 7700 ITPD students: PRDI 7000, PRDI 7100, PRDI 7300, and PRDI 7150 in addition to above courses. Eligible Students: Elective for NTPD and ITPD students.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7780 - Pharmacogenomics (1 Credit)**

This course provides students with an understanding of how genetic factors influence drug disposition, response, and adverse effects. Knowledge gained from this course enhances students' ability to apply genetic information to pharmacy practice and select the most appropriate therapeutic intervention(s). Prerequisites: For NTPD students: PRDO 7700, PRDO 7400, PRDO 7440, PRDO 7710. For ITPD students: PRDI 7000, PRDI 7100, PRDI 7150, and PRDI 7300 in addition to above courses. Eligible Students: NTPD and ITPD students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7800 - Clinical Problem Solving Skills (2 Credits)**

This course builds on principles and skills taught and gained in prerequisite courses, such as drug information, identification/use of optimal resources, effective literature search and evaluation strategies, critical scientific literature appraisal and applying evidence in clinical practice. Prerequisites: For NTPD students: PRDO 7700, PRDO 7440, PRDO 7710, at least ONE of the following: PRDO 7720, PRDO 7750, or PRDO 7760. For ITPD students: PRDI 7000. PRDI 7100, PRDI 7150, and PRDI 7300 in addition to above courses. Eligible Students: NTPD and ITPD students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.



**PRDO 7818 - Pharmaceutical Industry Fundamentals (1 Credit)**

Course provides a broad background on the pharmaceutical industry, with a focus on 7 key topic areas of interest to practicing pharmacists, including fundamental areas, such as clinical development, medical affairs and commercial topics. Students will complete an additional topic of their choice to meet their professional needs.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

Typically Offered: Fall, Spring, Summer.

**PRDO 7850 - Clinical Capstone (3 Credits)**

This course is designed to be a capstone that integrates essential core pharmacy practice topics. The philosophy of this course is to facilitate student learning and hold students accountable for prior learning in an integrated manner using complex patient scenarios. Prerequisites: For NTPD students: PRDO 7700, PRDO 7400, PRDO7440, PRDO 7710, PRDO 7800 at least TWO of the following; PRDO 7720, 7750 or 7760.

For ITPD students: PRDI 7000, PRDI 7100, PRDI 7150 and PRDI 7300 in addition to above courses. /Notes:Eligible Students: - NTPD New students (those admitted fall semester 2014 and later) and - ITPD New students

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PRDO 7851 - Clinical Capstone (3.5 Credits)**

Clinical Capstone -- This course is designed to be a capstone that integrates essential core pharmacy practice topics. The philosophy of this course is to facilitate student learning and hold students accountable for prior learning in an integrated manner using complex patient scenarios. Required prerequisites: PRDO 7150, PRDO 7700, PRDO 7400, PRDO 7621, PRDO 7622, PRDO 7561, PRDO 7440, PRDO 7800.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.5.

Typically Offered: Fall, Spring, Summer.

**PRDO 8401 - APPE - Ambulatory Care (6 Credits)**

Requisite: All didactic coursework (ITPD and NTPD), both live sessions (ITPD), PRDO 7411 (NTPD), PRDI 7911 (ITPD), Immunization Training completed through APHA or Canadian Province, and a cumulative professional 2.0 GPA.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PRDO 8402 - Ambulatory Care-Challenge (6 Credits)**

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PRDO 8501 - APPE Hospital/Health System (6 Credits)**

This experience will take place in an inpatient practice setting. Students will be exposed to adult patients with a variety of disease states, and participate in other institutional activities related to clinical pharmacy services. Requisite: All didactic coursework (ITPD and NTPD), both live sessions (ITPD), PRDO 7411 (NTPD), PRDI 7911 (ITPD), Immunization Training completed through APHA or Canadian Province, and a cumulative professional 2.0 GPA.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PRDO 8502 - APPE Hospital/Health System Challenge (6 Credits)**

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PRDO 8601 - Advanced Pharmacy Practice Experience-Community (6 Credits)**

This experience will take place in a community pharmacy practice setting. Practice sites include independent, large chain, or retail pharmacies that provide a variety of services, including administration of immunizations and Health/Wellness screenings. Requisite: All didactic coursework (ITPD and NTPD), both live sessions (ITPD), PRDO 7411 (NTPD), PRDI 7911 (ITPD), Immunization Training completed through APHA or Canadian Province, and a cumulative professional 2.0 GPA.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PRDO 8701 - APPE Elective Rotation (6 Credits)**

Requisite: All didactic coursework (ITPD and NTPD), both live sessions (ITPD), PRDO 7411 (NTPD), PRDI 7911 (ITPD), Immunization Training completed through APHA or Canadian Province, and a cumulative professional 2.0 GPA.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

**PRDO 8702 - APPE Elective-Challenge (6 Credits)**

Elective credit by challenges to be submitted NTPD students enrolled Fall 2014 or later.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 6.

Typically Offered: Fall, Spring, Summer.

## Pharmacy Integrative Health Medicine (PIHM)

**PIHM 7440 - Evidence-based Medicine in IHM (3 Credits)**

This course provides an introduction and step-wise approach to evidence-informed medicine. Knowledge gained from this course allows students to search for and understand published medical studies, commonly-used research designs and statistical tests, and their application to clinical practice.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PIHM 7441 - Evidence Based Medicine in IHM (1.5 Credits)**

This course provides an introduction and step-wise approach to evidence-informed medicine, covering topics such as study design, asking clinical questions and statistical methods. This course serves as the foundation to evidence-based medicine in the application of IHM literature in PIHM 7442.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.5.

Typically Offered: Fall, Spring, Summer.

**PIHM 7442 - Applied Evidence Based Medicine in IHM (1.5 Credits)**

This course continues from PIHM 7441. It provides students knowledge and skills to search for and evaluate published IHM-related clinical studies and/or information, identify and evaluate commonly-used research designs and statistical tests, and apply this to clinical IHM practice. Pre-Requisite: PIHM 7441 IHM Evidence-based Medicine I or PRDO 7440 Evidence-based Medicine or PHRD 6065 Evidence-based Medicine

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.5.

Typically Offered: Fall, Spring, Summer.

**PIHM 7670 - Pharmacology of Natural Supplements (2 Credits)**

This course describes the science of botanical products used to treat human disease. It will examine active compound structures and their naturally occurring derivatives, including structure-activity relationships, known molecular targets, and modes of action.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PIHM 7680 - Integrative Health in Common Clinical Diseases (2 Credits)**

This course describes the science of botanical products used to treat human disease. It will examine active compound structures and their naturally occurring derivatives, including structure-activity relationships, known molecular targets, and modes of action.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PIHM 7775 - Introductory & Applied IHM I (1 Credit)**

This course introduces core Integrated Health and Medicine domains, familiarizes students with the most common herbal products utilized by consumers, discusses regulatory issues and strategies for identifying good sources of products, and touches on popular therapies including bio-identical hormones.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

**PIHM 7778 - Introductory & Applied IHM II (1 Credit)**

This course develops a broad knowledge base in the field of Integrative Health & Medicine (IHM) which combines conventional western medicine with complementary and alternative medicine (CAM), with focus on aromatherapy, homeopathy, chiropractic medicine and mindfulness medicine. Pre-Requisite: PIHM 7775

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

## Philosophy-CSU (PHLY)

**PHLY 5640 - Seminar in Animal Rights (3 Credits)**

Contemporary issues concerning nature and moral status of nonhuman animals.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**PHLY 6660 - Science and Ethics (3 Credits)**

Science, skills, and beliefs directed at the maintenance and improvement of health for all people.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

## Physical Medicine (PHMD)

**PHMD 8000 - Physical Med & Rehab (4-8 Credits)**

Max:4. This elective provides experience in the diagnosis and treatment of patients with pathology of the neurologic and musculoskeletal systems. 4 different locations (VA, Denver Health, University Hospital, The Children's Hospital) allow treatment of a variety of conditions related to rehabilitation.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PHMD 8100 - PHMD Elective Away (4-8 Credits)**

This Physical Medicine and Rehabilitation elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2or 4 weeks. Prereq: 800

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PHMD 8600 - Research Physical Med (4-24 Credits)**

2-12 wks. Written evaluation must be sent by individual instructor, with course director responsible for final grade. Prereq: PHMD 8000. Obtain departmental approval and all arrangements made at least one month in advance and prior approval from Associate Dean for Student Affairs.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

## Physical Therapy Doctorate (DPTR)

**DPTR 5001 - Clinical Anatomy I (5 Credits)**

This course follows a regional approach to gross anatomy of the musculoskeletal, circulatory and nervous systems of the upper and lower extremities, thorax and head and neck. Supplemented by cross sectional anatomy, radiographic and digital imaging.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 5011 - Neuroscience (3 Credits)**

This course provides a framework for understanding the structural and functional organization of the human nervous system. Principles and applications of neurophysiology, neuroanatomy and functional correlates are included. Finally, diseases and dysfunctions of the nervous system that are relevant to current practice are introduced.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5101 - Movement Science I (3 Credits)**

This course investigates movement science with emphasis on foundational biomechanical principles related to human posture and movement. Qualitative and quantitative movement analysis is presented with emphasis on clinical application.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5111 - Exercise Science (2 Credits)**

This course will provide students with the current state of knowledge in the physiology of exercise. A systems approach will be used to provide a thorough understanding of the acute and chronic adaptations to exercise training, with an emphasis on the mechanisms underlying these adaptations.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5141 - Human Growth & Development (2 Credits)**

This course addresses functional movement across the life span in healthy individuals. Emphasis is on stages in life when the greatest changes in motor behavior occur and the factors that influence those changes. Developmental changes in all systems and their contributions to functional movement will be explored.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5151 - Motor Control & Motor Learning (2 Credits)**

This course presents the foundation of motor learning and control as it applies to optimal movement across the lifespan. Emphasis is on variables related to task composition, the environment and augmented information that enhance practice of motor skills. These principles are applied to physical therapist practice.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5161 - Psychosocial Aspects of Care I (1 Credit)**

This course is focused from the perspective of the practitioner as a person. General psycho-emotional issues and specific theories related to: practitioner self-awareness, emotions, spirituality, grief-loss-mourning, psych factors associated with the experience of pain will be presented. Introduction to motivational interviewing is included

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5162 - Psychosocial Aspects Care II (2 Credits)**

Builds on knowledge, skills and attitudes gained in DPTR 5161 with additional focus on general issues and theories related to: changing behaviors, depression and anxiety, sexuality in rehabilitation, suicidal behavior, addiction in society, stress management and conflict resolution.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**DPTR 5171 - Health Promotion and Wellness I (1 Credit)**

Disease prevention and health promotion are recognized as integral aspects of physical therapist practice. In this first of two courses, students will use current models of behavior change, disability, and population health to understand the multiple determinants of health and wellness. Using oneself as the client, students will complete an individual health assessment, identify areas of growth, and generate a plan to promote their own health and wellness.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 5201 - Examination & Evaluation I (2 Credits)**

This course introduces the physical therapist's examination of the patient. This course will familiarize the student with the ICF framework and emphasize foundational examination skills including, manual muscle testing, goniometry and surface palpation.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 5202 - Examination and Evaluation II (2 Credits)**

This course emphasizes developing a process of hypothesis generation to direct clinical decision making during the examination part of the patient encounter. Skill development includes examination techniques of the integumentary, cardiovascular/pulmonary, neuromuscular, and musculoskeletal systems, including analysis of human movement.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5211 - Foundations of Intervention I (2 Credits)**

This course introduces basic examination and intervention principles and techniques for posture and positioning, basic mobility with and without assistive devices, soft tissue mobilization, and physical agents, for improving functional mobility and for managing a variety of clinical populations.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 5212 - Foundations of Intervention II (2 Credits)**

Further introduction and advancement of foundational intervention principles and techniques including soft tissue mobilization, physical agents and electrotherapeutic modalities. Emphasis is on the application of exercise as an intervention for improving functional mobility and for managing a variety of clinical problems.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5301 - Medical Conditions I (4 Credits)**

This course highlights the physical therapy management of patients with cardiovascular, pulmonary and metabolic disorders across the lifespan and healthcare settings. Physiology, medical management, diagnostic testing, clinical decision making and medical screening are covered with implications for physical therapist's practice.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5401 - Musculoskeletal Conditions I (4 Credits)**

This course introduces the examination, clinical decision-making and physical therapy management of musculoskeletal disorders across the life span, focusing on the lower quarter from the pelvis to the foot and ankle. Medical management, including radiology and pharmacology, are covered with implications for physical therapy interventions.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5501 - Neuromuscular I (3 Credits)**

Clinical decision-making frameworks are discussed for management of people with neurologic conditions with an emphasis on stroke and cerebral palsy. Clinical skills are taught for examination, evaluation and intervention across the lifespan and across settings. Evidence based practice and manual guidance are emphasized for intervention.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5621 - Evidence Based Practice (3 Credits)**

This course covers and applies concepts and steps of evidence-based practice to a variety of clinical settings, including: searching; selection; and appraisal of the literature. Emphasis is on searching the literature to answer clinical questions regarding physical therapy tests and measures, interventions, and patient prognosis.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5631 - Clinical Reasoning I (1 Credit)**

This introductory course teaches students to integrate current evidence with critical reasoning in the ICF framework to facilitate patient-centered decision making in the examination, prognosis, and intervention for elementary patient cases across a variety of clinical practice settings.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5711 - Professional Development I (2 Credits)**

First in a series of courses on professional development. Students will explore self and begin the journey of becoming a physical therapist, including personal and professional values and professional communication/ behaviors. Concepts of continuum of care and population health will be introduced. Prerequisite: DPT Program students only.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 5731 - Healthcare Delivery I (1 Credit)**

The course will include a basic overview of healthcare systems and payment systems. Concepts relevant to supervision and applicable laws to physical therapist practice will be reviewed, and patient quality improvement and safety will be introduced.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5841 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**DPTR 5842 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 5843 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 5901 - Integrated Clin Experience I (1 Credit)**

Short-term clinical education experience providing initial foundation and understanding of clinical practice with emphasis on integration of didactic and clinical learning while working in a student team.

Prerequisites: DPT Program students only

Grading Basis: Pass/Fail Only

Typically Offered: Fall.

**DPTR 6002 - Clinical Anatomy II (3 Credits)**

This course follows a regional approach to gross anatomy of the systems of the abdomen and pelvis and supplemented by cross sectional anatomy radiographic and digital imaging. An in-depth study of upper and lower extremity arthrology through cadaver dissection is included.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 6102 - Movement Science II (2 Credits)**

Application of movement science in physical therapy practice with emphasis on human movement related to aging, clinical analysis, tests & measures, and prosthetics & orthotics. The prosthetic & orthotic unit is designed to build student competency in clinical management of individuals who require use of common prosthetic & orthotic devices

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 6302 - Medical Conditions II (2 Credits)**

This course continues the physical therapy management of patients with varied medical conditions (cancer; rheumatic) occurring across the lifespan and health care settings. Physiology, medical management, diagnostic testing, clinical decision making and medical screening are covered with implications for physical therapist's practice.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 6303 - Medical Conditions III (3 Credits)**

This course continues the physical therapist management of medical conditions. Integumentary, endocrine, transplant, geriatric and ICU care are emphasized. Physical therapist's clinical decision-making and differential diagnosis are advanced while integrating physiology, medical and pharmacological management and diagnostic testing.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 6402 - Musculoskeletal Conditions II (2 Credits)**

This course continues examination, clinical decision-making and physical therapy management of people with musculoskeletal disorders across the life span, focusing on the cervicothoracic spine and temporomandibular disorders. Medical management, radiology and pharmacology are covered with implications for physical therapy interventions.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 6403 - Musculoskeletal Conditions III (4 Credits)**

This course continues the examination, clinical decision-making and physical therapy management of people with musculoskeletal (MSK) disorders across the life span, focusing on upper extremity, pediatric, geriatric, in-patient, working adults and gender-specific conditions. MSK medical management, radiology and pharmacology are covered.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 6502 - Neuromuscular Conditions II (2 Credits)**

This course includes an in-depth exploration of people with neurodegenerative conditions across the lifespan, specifically as related to tests and measures, prognoses, and intervention approaches. Radiology and pharmacology as related to neuropathy are included.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 6503 - Neuromuscular Conditions III (4 Credits)**

This course progresses and synthesizes clinical skills, decision-making and reasoning (including use of frameworks and evidence) as applied the physical therapy management for people with neurological conditions across the lifespan. The physical therapist's role across settings and the continuum of care will be explored.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 6632 - Clinical Reasoning II (1 Credit)**

This advanced course teaches students to integrate current evidence with critical reasoning in the ICF framework to facilitate patient-centered decision making in the examination, prognosis, and for intervention for complex patient cases across a variety of clinical practice settings.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**DPTR 6633 - Clinical Reasoning III (2 Credits)**

This course requires students to integrate evidence, patient values, and clinical expertise with the ICF model of clinical decision making for actual patient cases. Students will identify and answer focused questions regarding examination, intervention, and prognosis through literature searches and online collegial discussion forums. Requirement: DPT Students only

Grading Basis: Letter Grade

Typically Offered: Spring.



**DPTR 6712 - Professional Development II (2 Credits)**

Explores professional roles and responsibilities related to the DPT. Extends beyond patient management to policy, advocacy, teamwork and practice settings. Overview of history of profession and our professional organization, current issues and trends. Looks at career options and post-professional opportunities.

Grading Basis: Letter Grade

Typically Offered: Fall, Summer.

**DPTR 6713 - Professional Development III (1 Credit)**

Introduction to management and leadership in healthcare, including leadership styles/characteristics and leadership development. Explores professional development opportunities following PT licensure including residency/fellowship, continuing education and expectations of a first position as a new professional. Requirement: DPT Students only

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 6732 - Healthcare Delivery II (3 Credits)**

Continued from HCD I. Focus on issues impacting the practice of physical therapy in diverse health care settings. Applicable laws will be revisited and expanded. Administration of physical therapist practice including management, marketing, human resources, risk management and financial management will be introduced.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 6851 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue study and learning content of their own choosing or a special clinical interest under guidance of a faculty mentor.

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**DPTR 6852 - Independent Study (1-3 Credits)**

This course provides students with an opportunity to pursue content of their own choosing under guidance of a faculty mentor.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DPTR 6853 - Independent Study (1-5 Credits)**

This course provides students with an opportunity to pursue content of their own choosing under guidance of a faculty mentor.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 6902 - Integrated Clinical Experience II (1 Credit)**

Two-week clinical education experience with emphasis on gaining breadth of experience, applying previously gained knowledge to a new clinical setting, engaging in advanced clinical reasoning, while continuing to practice psychomotor skills.

Grading Basis: Pass/Fail Only

Typically Offered: Fall.

**DPTR 6931 - Clinical Education I (5 Credits)**

Eight-week, full time clinical experience providing students with the opportunity to take on responsibilities of the professional physical therapist, including beginning to manage a caseload and participating in a healthcare team. Requirements: DPT Students only.

Grading Basis: Pass/Fail Only

Typically Offered: Fall, Summer.

**DPTR 6932 - Clinical Education II (6 Credits)**

This is a 10-week, full-time supervised clinical experience. Experience with emphasis on increasing independence in management of patients, becoming an integral member of the healthcare team and using self-assessment for professional development.

Grading Basis: Pass/Fail Only

Typically Offered: Spring.

**DPTR 7112 - Applied Exercise Science (3 Credits)**

This course will focus on exercise prescription for complex patients with multi-system disease. Emphasis will be on clinical decision-making to tailor appropriate rehabilitation interventions to medically-complex patient populations.

Grading Basis: Letter Grade

Typically Offered: Spring.

**DPTR 7171 - Health Promotion and Wellness II (3 Credits)**

In this second of two courses on disease prevention and health promotion, students will apply fundamental concepts learned in HPWI to their clients and communities. Students will learn to work alongside their clients to identify and address individual, social and structural barriers to health. They will also learn to work alongside community members to assess community health priorities, co-develop a health promotion program, and evaluate outcomes.

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 7212 - Elective (1 Credit)**

Various topics: provides students with the opportunity to explore selected topics, related to clinical practice, in depth or topics that are outside of the scope of the set curriculum. DPT students only.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 1.

Typically Offered: Summer.

**DPTR 7641 - Integrated Practice (3 Credits)**

A synthesis of curricular content applied to highly complex situations illustrative and inclusive of clinical practice across the lifespan. Through retrospective and prospective reasoning, students will analyze and articulate decisions based on reasoning, evidence, and contextual realities with colleagues across health care professions. Requirement:

DPT Student Enrollment Only

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 7651 - Clinical Reasoning Capstone (4 Credits)**

Final course in the clinical reasoning sequence requires students to articulate and defend their clinical decision-making process in the exam, eval, management, and outcome assessment for a selected patient. Students will synthesize and integrate the evidence to inform decision making throughout each aspect of the patient mgmt process.

Requirement: DPT Student Enrollment Only

Grading Basis: Letter Grade

Typically Offered: Summer.

**DPTR 7861 - Independent Study (1-3 Credits)**

Grading Basis: Pass/Fail Only

Typically Offered: Summer.

**DPTR 7862 - Independent Study (1-5 Credits)**

Grading Basis: Pass/Fail Only

Typically Offered: Fall.



**DPTR 7933 - Clinical Education III (10 Credits)**

This is a 16-week, full-time supervised clinical experience with emphasis on functioning as an entry-level clinician, and understanding the role of a Doctor of Physical Therapy within the complexities of the healthcare system through teamwork and collaboration. First phase of year-long internship.

Grading Basis: Pass/Fail Only

Typically Offered: Fall.

## Political Science-CSU (POLS)

**POLS 6650 - Public Policy Analysis (3 Credits)**

Course will help students develop skills that allow them to define and critically analyze policy issues/problems, specify how decisions will be made regarding analysis of problems, evaluate alternative methods/solutions, and assess the means and costs of implementing policies. Prerequisite: Previous or concurrent coursework in statistics.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**POLS 6700 - Politics of the Environment and Sustainability (3 Credits)**

This course addresses the following questions: What is the relationship between nature and society? What interventions/strategies are proposed? How are the two related? Included is the discussion of the different approaches to managing/governing nature. Prerequisites: Statistics and introductory biology required

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

## Population Mental Health Wellbeing (PMHW)

**PMHW 6601 - Mental Health (3 Credits)**

This course examines mental health and substance abuse recognizing that the promotion of well-being by preventing mental health disorders and substance addictions is as important as intervention and treatment. Etiology, prevalence, and impact of mental health and substance abuse disorders by culture, ethnicity and gender are discussed. Cross-listed with CBHS 6630

Grading Basis: Letter Grade

Typically Offered: Spring.

**PMHW 6620 - Mental Health Systems and Policy (3 Credits)**

This course will examine existing policies related to behavioral health, compare structures of behavioral healthcare delivery, and explore innovations in the field of behavioral health and integrated care models.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PMHW 6621 - Mental Health and Wellbeing Promotion (3 Credits)**

Understanding the basis of the field of positive psychology and its role in public health, key dimensions of well-being and their implications to physical and mental health outcomes, mental health and well-being research and practice, strategies to enhance well-being and prevent and/or treat mental health and substance use disorders.

Grading Basis: Letter Grade

Typically Offered: Spring.

**PMHW 6622 - Opioid Use, Overdose and Public Health (1 Credit)**

This course will discuss the physiologic and behavioral effects of opioid use and opioid use disorder, factors contributing to the modern opioid epidemic in the U.S., and diverse public health interventions and policy approaches to preventing harm from opioid use.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall.

**PMHW 6625 - Substance Use: A Public Health Perspective (3 Credits)**

Introduces substance use epidemiology, policies, prevention interventions, treatment approaches and innovations in substance use research as well as examining factors influencing health disparities in substance use outcomes.

Grading Basis: Letter Grade

Typically Offered: Fall.

**PMHW 6627 - Mental Health and Technology (1 Credit)**

This course will examine the use of technology and methods to evaluate applications of technology to mental health and substance use treatment and prevention, ethical issues associated with technological applications in mental health, methods for enhancing user engagement, technology options for application in this area of public health.

Grading Basis: Letter Grade

Typically Offered: Summer.

**PMHW 6670 - Special Topics: Population Mental Health Wellbeing (1-3 Credits)**

Special interest areas of population mental health and wellbeing are analyzed in depth. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

Typically Offered: Fall, Spring, Summer.

## Preventative Medicine (PRMD)

**PRMD 6642 - Legislative Health Care Policy (2 Credits)**

Grading Basis: Letter Grade

**PRMD 8003 - Specialty Preventive Med (8 Credits)**

4 wks. Max:4. Designed for students interested in exploring the field of preventive medicine. Tailored educational experiences in the Denver area in a variety of settings. Speak with course director to design this elective.

Prereq: Course director approval required to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

**PRMD 8006 - Directed Study Ethics/Humanities (4-24 Credits)**

2-12 wks. Selected students may participate in directed scholarly work in Bioethics and Medical Humanities with specific faculty members.

Opportunities such as directed literature reviews, clinical research projects, curriculum development projects, and other scholarly activities are available. Prereq: Course director approval required to add course.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**PRMD 8100 - PRMD Elective Away (8 Credits)**

This Preventive Medicine elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PRMD 8600 - Research Preventive Med (4-24 Credits)**

2, 4, 8 or 12 wks. Designed for students interested in preventive medicine research. Tailored research experiences in the Denver area can be established in a variety of settings. Speak with the course director to design this elective. Prereq: Course Director and Associate Dean for Student Affairs approval required to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**PRMD 8630 - PRMD Research Away (4-16 Credits)**

This Preventive Medicine elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 6 or 8 weeks.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**PRMD 9000 - Intercampus Spec Topics (1-10 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 10.

## Psychiatry (PCHY)

**PCHY 5150 - Womens Health (3 Credits)**

Grading Basis: Letter Grade

Additional Information: Colorado State University.

**PCHY 5160 - Pub Hlth Prac-History (1 Credit)**

Grading Basis: Letter Grade

Additional Information: Colorado State University.

**PCHY 5161 - Pub Hlth Pract-Oversight (1-18 Credits)**

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

Additional Information: Colorado State University.

## Psychiatry (PSYM)

**PSYM 6620 - Psychiatric Aspects of Great Literature (2 Credits)**

Min:4 Max:15. Writers, the first thinkers to understand the "wholeman," took into account his unconscious. We'll illustrate this as reflected in normal development and personality formation, symbolization, fantasy and psychopathology using the characters and texts from Great Literature. Tuesday evenings.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring.

**PSYM 6626 - Intro to Emergency Psch (1 Credit)**

Min:4 Max:20. Students will learn basics of emergency evaluation with particular focus on suicide, homicide, child abuse, spouse abuse, and incest. Students will see emergency psychiatric consultations with residents, staff or faculty.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**PSYM 6632 - Denver CARES Elective (1 Credit)**

Min:6 Max:20: In this course students will gain confidence in performing basic H&P skills while interacting with acutely ill patients in a detox facility. Requirements include volunteering a minimum of two shifts, as well as attending the orientation and debriefing sessions.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**PSYM 6633 - SUD in Medical Practice (1 Credit)**

Fall and Spring. Students will learn basic identification, assessment and treatment of substance abuse disorders through clinical experience, reading, and seminars. Will evaluate patients in 2 afternoon clinics (adolescent and adult treatment program) and 2 seminars. Core reading will supplement clinical experience.

Grading Basis: Medical School

Typically Offered: Fall, Spring.

**PSYM 8000 - Advanced Inpatient Psychiatry (8-12 Credits)**

Students take responsibility as primary provider for seriously ill patients, work closely with treatment team directed by an attending psychiatrist. Students assume responsibilities for care of patients that interns typically assume: performing H&Ps, writing orders, giving "bad news" when appropriate.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

**PSYM 8001 - Primary Care Substance Problem (4-8 Credits)**

2-4 wks. Max:2. In treatment programs, experts' tutorials, and readings, students learn approaches to 6 common primary care substance problems, such as addiction in pain disorders, pregnancy, smoking with tobacco-induced illness, and substance involved adolescents. Students write a paper on the 6 clinical problems. Prereq: Course Director approval required to add course.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

**PSYM 8003 - Elective in Psychiatry (4-8 Credits)**

Students in conjunction with the office of psychiatry medical student education, choose to work with patients on an inpatient psychiatry ward, outpatient clinic or other psychiatric units as a member of a treatment team.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PSYM 8004 - Advanced Child and Adolescent Inpatient Psychiatry (8-12 Credits)**

4 or 6 wks. This Sub-I course DOES NOT meet the UC SOM requirement for graduation. Evaluate and manage adolescents with psychiatric disorders. Students will be members of multidisciplinary team learning about psychopathology, psychopharmacology, psychotherapy, family therapy and other treatment modalities. Students will learn about systems of care. Restrictions: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8006 - Clinical PSYM Consultation/Liaison (8-12 Credits)**  
Consultation-Liaison Psychiatry a unique discipline within the field of psychiatry which combines knowledge of medical illnesses, psychotherapy and psychopharmacology with an ability to forge liaisons within the medical community. Evaluate and help manage patients with psychiatric disorders within medical settings. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8007 - Clinical PSYM Emergency Services (8-12 Credits)**  
Learn elements of crisis intervention, and to make psychiatric diagnoses and evaluate lethality. Students will evaluate and help treat a broad range of psychiatric difficulties, and encounter the psychiatric and psychosocial problems they will see in their practices. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8008 - Forensic and Correctional Psych (8 Credits)**  
Introduction to the interface of criminal law and psychiatry. Students will be involved in the evaluation of people entering pleas of incompetency to stand trial and not guilty by reason of insanity as well as the treatment and restoration process. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8009 - Clinical PSYM Addiction (8-12 Credits)**  
Learn the essentials of identification, assessment, and treatment of patients with substance use disorders. Emphasis on screening and brief intervention techniques. Learn principles of detoxification for alcohol, opioids, and cocaine; interpretation of drug testing results; proper prescribing practices. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8010 - Clinical PSYM Eating Disorders (8-12 Credits)**  
Evaluate and manage patients with eating disorders under the direction of fellows and attendings. Student will gain specific knowledge of classification, epidemiology, etiology, psychology, and treatment of eating disorders. Prerequisites: Contact coordinator to confirm availability.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8015 - Perinatal and Infant Mental Health (8 Credits)**  
Students will learn about maternal mental health during pregnancy and the first year postpartum, and gain understanding of infant mental health and the mother-baby relationship. Students will work in the following settings: outpatient mom-baby group therapy, psychiatric outpatient clinic, NICU, integrated mental health in OB/GYN and Young Mother's Clinic (pediatric primary care).

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**PSYM 8100 - PSYM Elective Away (4-8 Credits)**  
This Psychiatry elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**PSYM 8600 - Research in Psychiatry (4-24 Credits)**  
2-12 wks. Research electives in various areas of Psychiatry. Contact Randy Ross, MD or Sharon Hunter, PhD for menu of research options. Prereq: The student must receive prior approval from the Associate Dean for Student Affairs and the course director to add course. Grading Basis: Pass/Fail with IP Repeatable. Max Credits: 24.

## Psychology-CSU (PSCY)

**PSCY 5150 - Women's Health (3 Credits)**

Current issues in women's health.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**PSCY 5170 - Perspectives in Global Health (3 Credits)**

Science, skills, and beliefs directed at the maintenance and improvement of health for all people. Students can only receive credit for one of the following courses: PSCY 5170, ANTP 5710, CBHS 6619

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**PSCY 5950 - Independent Study - (Psychology (1-18 Credits)**

Independent study in psychology.

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PSCY 6000 - Health Psychology (3 Credits)**

This course will examine the connections between humans' cognitions, emotions, and behaviors and their mental and physical health.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**PSCY 6530 - Methods of Research in Psychology II (4 Credits)**

Students will develop a strong understanding of the general linear model and learn how to use the model to answer substantive questions in their field of research. The course will include statistical analyses.

Prerequisite: BIOS 6601 or equivalent

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

## Public Health - General (PUBH)

**PUBH 6600 - Foundations in Public Health (2 Credits)**

This course examines the historical and conceptual bases of public health, the key issues and problems faced by the public health system, and the tools available for the protection and enhancement of the public's health.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**PUBH 6606 - MPH Practicum (2 Credits)**

All MPH concentrations require students to successfully complete a practicum in which the student demonstrates competencies and integrates knowledge. It is intended to enrich student's experience by providing an opportunity to apply theory and skills in a public health setting. Prereq: PUBH 6600 and successful completion of 3 additional core courses. Student must be in good academic standing to enroll. Only open to MPH Students. Instructor consent required.

Grading Basis: Pass/Fail with IP

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring, Summer.

**PUBH 6615 - Public Health & Social Work Integrative Seminar (2 Credits)**

This course provides a foundation for understanding, embracing and communicating about Public Health and Social Work as an integrated profession. It integrates theory and skills of the social work and public health professions and engages students in critical thinking about their potential for promoting social justice and health equity.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Summer.

**PUBH 6625 - Anti-Oppressive Practice and Research in Public Health (2 Credits)**

This course requires students to develop a complex foundational knowledge of their multiple identities and the relationship of those identities to power and privilege, or accumulations of disadvantage. The course is intended to increase awareness of multidimensional aspects of identities in public health practice and research.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

**PUBH 6640 - Clinical Experience for MD-MPH Students (1 Credit)**

MD-MPH students work in the clinic of an academic physician-scientist who specializes in a clinical area of interest to the student. The goals of this course are to maintain and further the clinical skills learned during medical school. Requisite: This course is only open to MD-MPH joint degree students. Instructor Consent Required.

Grading Basis: Pass/Fail Only

Repeatable. Max Credits: 3.

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring, Summer.

**PUBH 6650 - Practical Training for International Students (0.5 Credits)**

Students complete a minimum of 45 hours of field work in a public health setting. The student's field placement must be approved through International Student & Scholar Services. Credit for this course cannot be applied to a degree. Requisite: This course is restricted to international students only.

Grading Basis: Non-Graded

Repeatable. Max Credits: 3.

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring, Summer.

**PUBH 6651 - MPH Research Paper (1-2 Credits)**

Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data. Prereq: BIOS 6601, CBHS 6610 or CBHS 6611, EHOH 6614, , EPID 6630, HSMP 6601, PUBH 6600 and permission of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 2.

A-PUBH1 Graduate students and public health certificate students only. Typically Offered: Fall, Spring, Summer.

**PUBH 6655 - Introduction to Public Health Ethics (3 Credits)**

This course provides learners with an introduction to public health ethics. The material explores differences between public health ethics & health care ethics, important frameworks used in public health ethical analysis, and significant practice in analyzing public health ethics cases. Cross-listed with HEHE 5655

Grading Basis: Letter Grade

Typically Offered: Spring.

**PUBH 6670 - Special Topics: Public Health (1-3 Credits)**

Special interest areas of current public health research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

Grading Basis: Letter Grade

Repeatable. Max Credits: 999.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**PUBH 6690 - Global Inequality and Change (3 Credits)**

Major issues in global inequality and change from a historical and contemporary perspective. Prereq: SOC 500

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**PUBH 6840 - Independent Study: Public Health (1-3 Credits)**

Faculty directed independent study in topics related to public health.

Department permission required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**PUBH 6842 - DrPH Seminar (1 Credit)**

This doctoral level course will address theory and practice at a level beyond that covered in Master's level courses. Students will acquire advanced skills in developing, testing, and applying theory and methods to public health problems. Restrictions: Enrollment in DrPH or permission of instructor.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**PUBH 6850 - DrPH Practicum (2-4 Credits)**

DrPH practicum is minimum 240 hours field experience under joint direction of CSPH Faculty mentor and practicing professional in community with leadership experience in public health agency. Written report/oral presentation specifying activities/ products/outcomes of experience required upon practicum hours completion. Restriction: Permission of Instructor.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 4.

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.

**PUBH 6956 - Continued MPH Studies (1 Credit)**

Continuation of MPH study experience. Prereq: PUBH 6955 and permission of instructor.

Grading Basis: Pass/Fail Only

A-PUBH1 Graduate students and public health certificate students only.

Typically Offered: Fall, Spring, Summer.



**PUBH 6991 - MPH Capstone Integration (1 Credit)**

MPH Capstone Integration will focus on interaction between MPH students from across concentrations to build communication skills and facilitate the students' integration of their projects within the broader scope of public health.

Grading Basis: Letter Grade with IP

Prerequisite: Capstone Preparation course.

Typically Offered: Fall, Spring, Summer.

## Public Health-CSU (PBHC)

**PBHC 5160 - Public Health Foundations (2 Credits)**

This course will provide students with an overview of key concepts underlying public health in historical and contemporary perspective. The course will include attention to the main functions of public health as well as ethical principles associated with public health practice.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**PBHC 5200 - Healthcare Systems, Policy and Management (3 Credits)**

This course provides an overview of the U.S. healthcare system, its key components and their functional relationships. Students learn about the organization and financing of the U.S. system, how health policy is developed and implemented, and key principles of leadership and management for health professionals.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**PBHC 5300 - Environmental Public Health and Policy (3 Credits)**

This course provides a broad understanding of the factors that influence natural, urban, rural, and workplace environments as well as human health risks from chemical, biological, and physical agents.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**PBHC 5340 - Public Health Data Management Using SAS (3 Credits)**

Students will learn how to use SAS software for data management to prepare data for analyses. Main topics include importing and exporting data, variable and dataset manipulations. Introductions to producing reports, basic statistics, figures and SAS macros are also covered.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Fall.

**PBHC 5400 - One Health in Public Health (3 Credits)**

This course will examine the interconnectedness of environmental, human and animal health. Issues will be addressed from the perspectives of public health, medicine, veterinary science, and ecology bearing in mind the implications for health policy.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**PBHC 5500 - Social and Community Health (3 Credits)**

This course reviews a wide range of behavior change theories used in public health promotion/disease prevention interventions. Development, implementation and evaluation of programs and policies to promote and sustain healthy environments and lifestyles are examined. Prerequisite: Students can only receive credit for one of the following: PBHC 5500, HESC 5560, CBHS 6610, and CHBH 5090

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**PBHC 5600 - Quantitative Methods in Public Health (3 Credits)**

Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis. Requirements: Students can only receive credit for one of the following: PBHC 5600, BIOS 6601, EDRM 6060, VSCS 6620 or CHBH 6120

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**PBHC 5700 - Epidemiology for Public Health (3 Credits)**

This course will provide an introduction to descriptive and analytic methods in epidemiology and their application to research and practice in public health.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**PBHC 5750 - Epidemiological Research for Public Health (3 Credits)**

Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies. PBHC 5600, PBHC 5700 and PBHC 5340 or equivalent.

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Spring.

**PBHC 6300 - Field Methods of Disease Investigation (3 Credits)**

The application of epidemiologic tools to collect, analyze, and interpret data and test results important for disease surveillance and investigation. Requisite: Once course in epidemiology.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**PBHC 6440 - Physical Activity and Public Health (3 Credits)**

This course explores the history of physical activity in public health, basic exercise physiology and kinesiology principles, as well as how to effectively promote and measure physical activity in a variety of populations. Physical activity in various settings will be discussed as well as program planning, implementation and evaluation.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.



**PBHC 6600 - Quantitative Methods in Public Health II (3 Credits)**

A continuation of PBHC 5600 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively. Pre-requisite: PBHC 5600

Grading Basis: Letter Grade

Additional Information: Colorado State University.

Typically Offered: Spring.

**PBHC 6860 - CSU Public Health Practicum (2 Credits)**

All MPH students are required to successfully complete a practicum in which the student demonstrates competencies and integrates knowledge. It is intended to enrich the student's experience by providing opportunity to apply theory and skills in a public health setting.

Prerequisite: PBHC 5160 or equivalent and successful completion of 3 additional core courses. Restriction: Student must be in good academic standing to enroll. Only open to MPH students. Department Consent Required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6920 - Public Health Seminar - APE (1-6 Credits)**

Seminar on current public health issues; topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6921 - Public Health Seminar - EPI (1-6 Credits)**

Seminar on current public health issues. Topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6922 - Public Health Seminar - GHHD (1-6 Credits)**

Seminar on current public health issues. Topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6923 - Public Health Seminar - HCOM (1-6 Credits)**

Seminar on current public health issues. Topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6924 - Public Health Seminar - PAHL (1-6 Credits)**

Seminar on current public health issues. Topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6925 - Public Health Seminar - PHN (1-6 Credits)**

Seminar on current public health issues. Topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6926 - Public Health Seminar - Public Health (1-6 Credits)**

Seminar on current public health issues. Topics will vary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 9.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6950 - CSU Public Health Independent Study (1-3 Credits)**

Faculty directed independent study in topics related to public health.

Instructor Permission Required.

Grading Basis: Letter Grade

Repeatable. Max Credits: 6.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6960 - Public Health Group Study (1-18 Credits)**

Public Health Group Study at CSU - topics vary

Grading Basis: Letter Grade

Repeatable. Max Credits: 18.

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

**PBHC 6980 - MPH Capstone - CSU (2 Credits)**

Capstone project for CSU Master of Public Health students. Department consent required.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Radiation Oncology (RAON)

**RAON 8005 - Radiation Oncology (8 Credits)**

4 wks. Max: 2. The student will learn the basic tools and techniques of radiation oncology, evaluate patients before and after treatment, learn specialized exam techniques, participate in consultations and multi-modality cancer treatment planning. Students will attend and participate in multidisciplinary tumor conferences.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**RAON 8100 - RAON Elective Away (8 Credits)**

This Radiation Oncology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks. Prereq: RAON 8005. Departmental approval must be obtained one month in advance.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**RAON 8600 - Research RAD Oncology (8 Credits)**

4 wks. This elective is designed to acquaint the student with current research developments, knowledge and techniques in radiation oncology. Prereq: RAON 8005. Departmental and Associate Dean of Student Affairs approval must be obtained and all arrangements made one semester in advance.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

**RAON 8630 - RAON Research Away (8-12 Credits)**

This Radiation Oncology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 or 6 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

## Radiology (RADI)

**RADI 5005 - Clinical Ultrasound (1-2 Credits)**

Ultrasound is being used by clinicians in many different settings for many different applications. This elective will introduce students to many of the primary applications for clinician-performed ultrasound. All of the meetings times will be devoted to hands-on ultrasound scanning. The scanning sessions will be in a small group setting with no more than six students per ultrasound machine. Students will be provided with pre-scanning session didactic materials to review.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**RADI 7001 - Pediatric Radiology Selective - Children's Hospital (8 Credits)**

Students will gain an understanding of the basics of pediatric imaging and correlation with anatomy and pathology. Students will learn the indication for and basic approach to interpretation of all imaging modalities including: x-ray, ultrasound, fluoroscopy, CT, MRI, nuclear medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8000 - Diagnostic Radiology (8 Credits)**

An introduction to the interpretation of images and the role of diagnostic imaging in patient care. Clinical observation, lectures, and independent study at UH/AOP. Only 2 days of absence permitted for any reason. Restrictions: Course not available sections 29 & 33. 4 wks. Max:4.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**RADI 8001 - Radiology for Non-Radiologists (4 Credits)**

Two-week course providing specialty focused radiology education, designed to help students be prepared for both internship year and their future career. Students will spend time with specific sub-specialty trained radiologists, based on interest, while reviewing foundational radiology course work.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**RADI 8002 - Nuclear Medicine (4-8 Credits)**

Max:2. Nuclear Medicine encompasses the various uses of radioactive compounds in medical diagnosis and therapy. Students participate in the supervision and interpretation of nuclear medicine procedures under the guidance of the staff/residents at the AOP. Students will attend daily conferences.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**RADI 8003 - Pediatric Radiology (4-8 Credits)**

Students will gain an understanding of the basics of pediatric imaging and correlation with anatomy and pathology. Students will learn basic approach to performance and interpretation of all imaging modalities including: x-ray, ultrasound, fluoroscopy, CT, MRI, nuclear medicine.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8007 - Interventional Radiology (4-8 Credits)**

2-4 wks. Max: 3. Interventional Radiology is the treatment of disease conditions using minimally invasive means. These procedures are performed with X-rays, US, and CT guidance. The student will round with the team, participate in procedures, and attend daily conferences. Standard student evaluation used.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**RADI 8008 - Virtual Interventional Radiology (4 Credits)**

Virtual introduction to Interventional Radiology, the field of diagnosis and treatment of disease conditions using minimally invasive image (fluoroscopy, US, CT) guided procedures.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8050 - Interventional Radiology - CSB (4 Credits)**

Patient care in relation to interventional radiology-inpatient setting.

Procedures may include intravascular emergencies, lines, PEG tube - CT guided procedures; ultrasound guided procedures; drain placements and observing radiology readings. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**RADI 8100 - RADI Elective Away (4-8 Credits)**

This Radiology elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. For rotation approval, students must first provide name, address, and phone number of preceptor to the course director. Students maintain sole responsibility for obtaining written evaluation. Offered 2 or 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**RADI 8600 - Research in Radiology (4-24 Credits)**

Student must submit a research project description and the name of their preceptor to the course director prior to the start of the elective. Student is responsible for obtaining written evaluation 2 week rotation not Honors eligible.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**RADI 8630 - RADI Research Away (4-24 Credits)**

This Radiology research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 8 or 12 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

## Rehabilitation Sciences (RHSC)

**RHSC 7000 - Foundations in Rehabilitation Science (2 Credits)**

This course provides an overview of the field of Rehabilitation Science and an introduction to disablement frameworks with an emphasis on biopsychosocial models of the enabling-disabling process across the life span. Restrictions: Instructor permission required for students not enrolled in the RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**RHSC 7001 - Rehabilitation Science Seminar (1 Credit)**

Students will attend contemporary research seminars presented by established scientists, and will participate in group discussions to assess the implications of seminar topics on the full spectrum of disablement constructs in Rehabilitation Science ranging from pathophysiology to community participation. Prerequisites: RHSC 7000 Foundations in Rehabilitation Science or Instructor Permission. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 1.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**RHSC 7002 - Professional Skills in Academia (2 Credits)**

This course provides an overview of instructional methods and professional skills for academic educators and scientists. Topics include instructional methods for graduate education, and development of professional skills in communication, management, networking, and promotion for academic careers in Rehabilitation Science. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**RHSC 7500 - Neurophysiology of Pain (2 Credits)**

This course will review neurophysiologic mechanisms involved in normal and pathologic processing of nociceptive stimuli, and their effects on human movement. Contemporary, evidence-based methods of pain assessment and management will be discussed for research and clinical applications. Prerequisites: Non-degree students must have instructor permission. Prerequisite: NRSC 5100 or NRSC 7600.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**RHSC 7910 - Research Practicum in Rehabilitation Science I (3 Credits)**

This research practicum exposes students to a variety of experimental tools and techniques available to Rehabilitation scientists. Mentored practicum experiences are selected by each student with permission from faculty mentor(s). Prerequisites: Instructor permission. Restrictions: Instructor permission required for students non enrolled in RHSC Program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 7911 - Research Practicum in Rehabilitation Science II (3 Credits)**

This research practicum exposes students to a variety of experimental tools and techniques available to Rehabilitation scientists. Mentored practicum experiences are selected by each student with permission from faculty mentor(s). Prerequisites: Instructor permission. Restrictions: Instructor permission required for students not enrolled in RHSC program.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 8900 - Independent Study in Rehabilitation Science (1-3 Credits)**

This course is designed for the advanced student to pursue one or more Rehabilitation Science topics in considerable depth. Faculty supervision is required. Prerequisites: Instructor permission. Restrictions: Instructor permission required for students not enrolled in RHSC Program.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**RHSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Rehabilitation Science. Prerequisites: Instructor permission. Restrictions: Enrollment in RHSC Program.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Removable Prosthodontics (DSRP)

**DSRP 6031 - Clinical Removable Prosthodontics 1 (0.1-5 Credits)**

Clinical rotation in removable prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSRP 6600 - Combined Removable Prosthodontics (0.1-5 Credits)**

Acquaints the student with principles of removable partial and complete prosthodontics. Includes principles of partial denture design and fabrication as they relate to preventive dentistry and diagnosis/treatment of edentulous patients j Problems of treating geriatric patients are discussed.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRP 6601 - Combined Removable Prosthodontics Laboratory (0.1-5 Credits)**

Laboratory exercises following lectures of principles of partial and complete removable prosthodontics. Students instructed in impressions, mounting casts, arrangement of artificial teeth, final waxing and familiarized with necessary steps in completing mandibular removable partial denture.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRP 7011 - Clinical Removable Prosthodontics 2 (0.1-5 Credits)**

Clinical rotation in removable prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRP 7022 - Clinical Removable Prosthodontics 3 (0.1-5 Credits)**

Clinical rotation in removable prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRP 7033 - Clinical Removable Prosthodontics 4 (0.1-5 Credits)**

Clinical rotation in removable prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSRP 8011 - Clinical Removable Prosthodontics 5 (0.1-5 Credits)**

Clinical rotation in removable prosthodontics.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRP 8022 - Clinical Removable Prosthodontics 6 (0.1-5 Credits)**

Clinical rotation in removable prosthodontics.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSRP 8812 - Implant Dentistry (1 Credit)**

Grading Basis: Letter Grade

**DSRP 8857 - Cln Removable Prosth II (0.1-4.5 Credits)**

Grading Basis: Letter Grade

## Reproductive Sciences (RPSC)

**RPSC 7802 - Reproductive Development (1 Credit)**

Focus of course is developmental biology of reproductive systems. Sex determination, fertilization, implantation, development of placenta and mammary glands will be covered in lectures and discussions of current literature. Course is designed to follow Endocrinology and Metabolism in Spring semester. Prereq: Core Courses IDPT 7811, 7812, 7813, 7814, 7815.

Grading Basis: Letter Grade

Typically Offered: Spring.

**RPSC 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in Reproductive Science. Prereq: Consent of instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Restorative Dentistry (DSRE)

**DSRE 5001 - Introduction to Dentistry (0.1-5 Credits)**

To introduce the beginning dental students to the program with an overview of dental concepts and procedures.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 5500 - Dental Anatomy (0.1-5 Credits)**

Anatomical characteristics of the primary and permanent teeth in the human dentition, intra-arch relationships are considered in detail.

Grading Basis: Letter Grade

Typically Offered: Fall.

**DSRE 5501 - Dental Anatomy Laboratory (0.1-5 Credits)**

Waxing full crowns of each tooth type to correct anatomical form, emphasizing intra-arch relationships.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 5503 - Dental Materials 2 (0.1-5 Credits)**

Course introduces materials used in the practice of dentistry. Their chemistry, physical properties, and biological interaction are discussed as well as their advantages, disadvantages, and methods of clinical use.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Summer.

**DSRE 5504 - Dental Materials Science I (0.1-5 Credits)**

Basic information about materials science includes physical, chemical, mechanical, and biological properties. This information provides the background for the study of specific materials used in dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 5506 - Occlusion 1 (0.1-5 Credits)**

This introductory course in articulation and occlusion deals with the principles of mandibular movement and reproducing these movements on an articulator. The various types of occlusions are considered as well as different treatment theories pertaining to occlusal philosophies.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSRE 5507 - Occlusion 1 Laboratory (0.1-5 Credits)**

The laboratory course includes waxing opposing dentitions to proper occlusion, obtaining intra-oral records on patient and mounting patient models on an articulator.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 5508 - Indirect Single Tooth Restoration 1 (0.1-5 Credits)**

This course in restorative dentistry teaches the treatment of lesions and defects of single teeth using indirect restorative principles and techniques. Cast gold is the restorative material taught in this course.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSRE 5520 - Introduction to Clinical Dentistry 1 (0.1-5 Credits)**

Provide students with the foundational knowledge to learn/work in the school's clinical environment. Students will develop and demonstrate a competent understanding of HIPAA and the school's Infection Control rules/policies. Students will also develop an understanding of the role quality and safety in patient care and the use of axiUm.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 5521 - Introduction to Clinical Dentistry 2 (0.1-5 Credits)**

This course will continue to prepare students for clinic. Topics covered provide a foundation for the practice of dentistry including Oral Health Literacy, Resiliency, Ergonomics and Training in 4-handed Dentistry including a Clinical Assist Session.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 5522 - Introduction to Clinical Dentistry 3 (0.1-5 Credits)**

This course will continue to prepare students for the clinic. Topics covered include a review and testing of head/neck and intraoral anatomy knowledge, clinical application of this knowledge, an all-day 8 hour Kaplan NBDE Part I practice exam, 4 handed dentistry, clinical assist session and introduction to clinic.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSRE 6600 - Transition Clinic 1 (0.1-5 Credits)**

This course will provide second year dental students with methods and techniques for diagnosis, treatment planning, and record keeping for general dental practice and will also serve as a platform to train students in the correct use of the Axiom software.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 6601 - Transition Clinic 2 (0.1-5 Credits)**

Provide techniques for diagnosis, treatment planning and record keeping for general dental practice. Axiom software training. Perform simple oral diagnosis appointments, periodic oral evaluations and basic operative procedures. Students will be paired together rotating between assistant and operator.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 6602 - Transition Clinic 3 (0.1-5 Credits)**

This is a follow on to T-Clinic 2. Students will be instructed how to complete very large amalgam and composite restorations, how to remove existing composite from natural teeth and other frequently encountered restorative issues that are seen in clinic. This will be a companion class to, but different from, previous operative courses.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSRE 6604 - Esthetic Dentistry (0.1-5 Credits)**

This course is designed to present information to students about those clinical dentistry procedures or concepts which are performed primarily to enhance dental esthetics.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSRE 6606 - Indirect Single Tooth Restoration 2 (0.1-5 Credits)**

Course teaches fundamental concepts, preparation, provisionalization, and restoration of single teeth with full gold crowns. Fundamental concepts, preparation and restoration of single teeth with cast gold onlays. Two onlay designs, a maxillary onlay design and a mandibular onlay design taught.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 6607 - Indirect Single Tooth Restoration 2 Laboratory (0.1-5 Credits)**

Course provides practical simulated clinical experience in preparation, provisionalization, and restoration of single teeth with full gold crowns. Two onlay designs, a maxillary onlay design, and a mandibular onlay design are practiced.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 6609 - Treatment Planning (0.1-5 Credits)**

Course will bridge the concepts learned in oral diagnosis, periodontics, restorative dentistry, radiology and transition clinic to help the students assimilate clinical information into clinically acceptable treatment plans that best meet patient needs. Department Consent Required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 6610 - Clinical Dental Materials (0.1-5 Credits)**

This course integrates knowledge of dental materials with clinical dental practice.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Spring.

**DSRE 6611 - Occlusion II Lecture 1 (0.1-5 Credits)**

Theory and indications treating mandibular instability with splints and equilibration. The etiology, diagnosis and treatment of occlusal trauma and mandibular dysfunction are introduced.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSRE 6612 - Occlusion II Lecture 2 (0.1-5 Credits)**

Theory and indications treating mandibular instability with splints and equilibration. The etiology, diagnosis and treatment of occlusal trauma and mandibular dysfunction are introduced.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSRE 6613 - Occlusion 2 Laboratory (0.1-5 Credits)**

The laboratory portion of this course includes fabrication of different splint types. It also introduces the principles of equilibration and applying these principles to models.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 6615 - Comprehensive Patient Care Clinic A (0.1-5 Credits)**

An introductory clinic for dental students. Students will provide comprehensive dental care, refining technical skills, and learning patient management skills in a large group practice setting.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSRE 6616 - Occlusion II Laboratory 2 (0.1-5 Credits)**

The laboratory portion of this course includes fabrication of different splint types. It also introduces the principles of equilibration and applying these principles to models.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.



**DSRE 6645 - Cariology (0.1-5 Credits)**

The course explores the etiology and microbiology of caries, patterns of disease progression, and approaches to prevention and treatment. Didactic instruction and clinical exercises will be offered in identifying caries and methods of detection.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 5.

Typically Offered: Fall.

**DSRE 7706 - Critical Appraisal of Translational Literature (0.1-5 Credits)**

The purpose of this course is to develop proficiency in critical thinking and problem solving as it pertains to scientific inquiry and research methodology in translational research. Department consent required

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 7708 - Dental Materials Seminar (0.1-10 Credits)**

The course is aimed to be an interactive session where the students will be divided into teams and will be asked to create presentations on clinical applications of dental materials.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 7711 - Advanced and Digital Prosthodontics (0.1-5 Credits)**

This course will address various Advance Prosthodontic topics; beginning with CAD/CAM dentistry and digital workflow, then removable partial denture designs, occlusal concepts, diagnosis and treatment planning, esthetics, and cementation for fixed prosthodontics restorations. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 7712 - Implant Dentistry (0.1-5 Credits)**

Concepts and applications of tissue integrated prostheses are presented and discussed. Topics include prosthetic techniques, diagnosis and treatment planning, analysis of current systems, qualifications and consent and clinical applications.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 7714 - Comp Pt Care Clinic B (0.6 Credits)**

Grading Basis: Letter Grade

**DSRE 7717 - Comprehensive Patient Care Clinic B (0.1-5 Credits)**

Continuation of Comprehensive Patient Care Clinic A with additional emphasis on the treatment of pediatric, orthodontic, geriatric, and endodontics cases.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 7718 - Critical Thinking and Patient Care Seminar (0.1-5 Credits)**

This course will provide the student with a practical application of the practice of evidence-based dentistry, critical thinking, formulation of clinical questions, critical appraisal of the literature and the translation of the biologic and social sciences to clinical patient care. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 7719 - Comprehensive Patient Care Clinic C (0.1-5 Credits)**

Comprehensive patient care activities with a focus on independence, student preparedness, technical skills, patient management and professionalism.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSRE 7721 - Comprehensive Patient Care Clinic D (0.1-5 Credits)**

Continuation of Comprehensive Patient Care C with emphasis on effective practice management.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSRE 7935 - Treatment Planning and Case Presentation I (0.1-5 Credits)**

Treatment planning concepts and presentation formats, focused on multidisciplinary approach, key tooth analysis, phased treatment plans and case presentation format and technique. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 7936 - Treatment Planning and Case Presentation 2 (0.1-5 Credits)**

Treatment planning concepts and presentation formats, focused on multidisciplinary approach, key tooth analysis, phased treatment plans and case presentation format and technique. Requisite: Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSRE 8806 - Critical Appraisal of Translational Literature II (0.1-5 Credits)**

The purpose of this course is to develop proficiency in critical thinking and problem solving as it pertains to scientific inquiry and research methodology in translational research. It provides a continued foundation for discussion of clinical events occurring in the student's clinical practice w/ emphasis on evidence-based dentistry. Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 8810 - Restorative Dentistry Advanced Clinical Training Service Seminar (0.1-5 Credits)**

This seminar-type course is a broad discussion of advanced restorative techniques for complex prosthodontic rehabilitation or reconstruction cases. Specific topics such as aesthetics, TMJ considerations and materials application will be included.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

**DSRE 8817 - Comprehensive Patient Care Clinic E (0.1-5 Credits)**

Advanced comprehensive patient care including applied principles of practice management.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSRE 8827 - Comprehensive Patient Care Clinic F (0.1-13 Credits)**

Continuation of advanced comprehensive patient care activities for DS 4 dental students not registered for Integrated Care Clinic Dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSRE 8837 - Comprehensive Patient Care Clinic G (0.1-15 Credits)**

Continuation of advanced comprehensive patient care activities for DS 4 dental students not registered for Integrated Care Clinical Dentistry.

Grading Basis: Letter Grade with IP

Typically Offered: Summer.

**DSRE 8945 - Treatment Planning and Case Presentation (0.1-5 Credits)**  
Treatment planning concepts and presentation formats, focused on multidisciplinary approach, key tooth analysis, phased treatment plans and case presentation format and technique. Department Consent Required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSRE 8946 - Treatment Planning and Case Presentation 4 (0.1-5 Credits)**

Treatment planning concepts and presentation formats, focused on multidisciplinary approach, key tooth analysis, phased treatment plans and case presentation format and technique. Department Consent Required.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

## Social Research Met-UNC (SRMS)

**SRMS 6000 - Introduction to Graduate Research (3 Credits)**

Principles of research, design and analysis. Read and critique published research. Required of all first year graduate students except in those departments with substitutes. Taught every semester.

Grading Basis: Letter Grade

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall, Spring, Summer.

**SRMS 6650 - Data Analysis for Decision-Making (3 Credits)**

This course focuses on the data-based decision-making process including identification of problems that can be addressed with data; articulating appropriate project goals/objectives; selection, collection, and management of data; data analysis and visualization; report writing and presentation of findings to relevant stakeholders. CHBH 6120, BIOS 6601 or PBHC 5600

Grading Basis: Letter Grade

Additional Information: Univ of Northern Colorado.

Typically Offered: Fall.

## SOCIAL WORK-CSU (SOWK)

**SOWK 5300 - Anti-Oppressive Social Work Practice (3 Credits)**

Developing anti-oppressive practice with a focus on multiculturalism and social justice advocacy. Critically evaluate personal traits, attitudes and values regarding diversity and identity formation while exploring theoretical frameworks for understanding oppression. Analyze the relationships among power, privilege and oppression.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Sociology-CSU (SOCO)

**SOCO 5620 - Sociology of Food Systems and Agriculture (3 Credits)**

This course is designed to explore how agricultural choices generate intended and unintended consequences for human communities and the natural environment.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring.

**SOCO 6620 - Sociological Policy Analysis (3 Credits)**

The main objective of this course is to develop an understanding of (1) the processes by which societies come to perceive of particular issues as social problems and formulate policies in response to these perceptions; and (2) the factors that affect these processes. Prerequisite: One course in sociology

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**SOCO 6950 - Independent Study - Sociology (1-6 Credits)**

Independent study in sociology.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall, Spring, Summer.

## Speech Communication-CSU (SPCM)

**SPCM 5380 - Relating and Organizing for Health (3 Credits)**

Organizational, interpersonal, and intercultural dimensions of communicating in public health clinical settings.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Spring.

**SPCM 6320 - Theory of Interpersonal Communication (3 Credits)**

Theories of communication in development, maintenance and deterioration of friendship, couple, family, group and business relationships.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

**SPCM 6390 - Communication Theory (3 Credits)**

Examination of communication philosophies and perspectives; analysis of modern theories of face-to-face communication.

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

## Statistics-CSU (STAS)

**STAS 5110 - Design and Data Analysis for Researchers (4 Credits)**

Statistical methods for experimenters and researchers emphasizing design and analysis of experiments using R software. Requisite: Statistics Course

Grading Basis: Letter Grade

A-PUBH1 Graduate students and public health certificate students only.

Additional Information: Colorado State University.

Typically Offered: Fall.

## Structural Biology & Biochemistry (STBB)

### STBB 7608 - Molecular Interactions (3 Credits)

Provides chemical/physical basis for protein structure, folding, function & stability; presents methods/principles of protein/peptide purification & enzyme catalysis including electron transfer & mutagenesis. The role of molecular dynamics & use of molecular simulations in the investigations of protein-ligand/protein-protein interactions. Cross-listed with PHSC 7608.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### STBB 7609 - Biophysics & Spectroscopy (3 Credits)

This course will teach fundamentals of modern molecular spectroscopies and biophysical techniques as applied to biomolecules and the structural/dynamic information they afford. Cross listed with PHSC 7609

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### STBB 7620 - Advanced Genome Analysis (2 Credits)

Introduction to genomics emphasizing gaining familiarity with: analysis, utilization of genomic data. Topics: sequencing, mapping genomes, transcriptomics, human genome, evolution, genomic disorders, bioinformatics, statistics, population variation, epigenomics, proteomics, metagenomics, Crosslisted Course: HMGP 7620, CPBS 7620, and MICB 7620microbiome analysis, functional genomics, ethics.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### STBB 7621 - Genome Analysis Workshop (3 Credits)

A tutorial of skills needed to process genomics data sets and visualize their results. Taught experimentalists with practical goals (e.g. to interpret the results of an experiment and gain biologically meaningful insight). Course is designed to closely mirror HMGP 7620. Restrictions: Students cannot have previously taken MOLB 7620. Cross listed with MOLB 7621.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

### STBB 7631 - Molecular Structure A (1.5 Credits)

Gain an in-depth understanding of the underlying principles of an NMR experiment, so that student can turn NMR theory into NMR practice for their research.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### STBB 7632 - Molecular Structure B (1.5 Credits)

Understand the theory and practice of structural determination using x-ray crystallography.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### STBB 7633 - Molecular Structure C (1.5 Credits)

The purpose of this course is to provide students with a concise understanding of biological mass spectrometry and its application to study and characterize various classes of biomolecules in state of the art research. Course is 7.5 weeks.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### STBB 7634 - Molecular Structure D (1.5 Credits)

The course will provide an introduction to conceptual and practical aspects of macromolecular cryo-electron microscopy (cryo-EM). A combination of lectures and hands-on experiences will give students a working understanding of cryo-EM and its application for structural analysis of biological macromolecules.

Grading Basis: Letter Grade

Typically Offered: Fall.

### STBB 7650 - Research in Structural Biology & Biochemistry (1-10 Credits)

Research work in Structural Biology and Biochemistry. 2 laboratory hours per week per credit.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

### STBB 7660 - Structure Seminar (1 Credit)

Seminar series provides a forum for the presentation of scientific experiments and information in structural biology by faculty, postdoctoral fellows and graduate students.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

### STBB 7670 - Independent Study in Structural Biology and Biochem (1-3 Credits)

This course is listed for the benefit of the advanced student who desires to pursue one or more topics in Structural Biology and Biochemistry in considerable depth. Supervision by a full-time faculty member is necessary.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

### STBB 7807 - Structural Biol & Biophysics Core Course II (2 Credits)

Provide first year students enrolled in the core course the opportunity to obtain or review background material in the fields of structural biology and biophysics.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

### STBB 8990 - Doctoral Thesis (1-10 Credits)

Doctoral thesis work in Structural Biology and Biochemistry.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

## Surgery (SURG)

### SURG 5005 - Introduction to Surgery (1-2 Credits)

Intro to general surgery & a variety of surgical specialties with an emphasis on foundational skills & knowledge development.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring.

### SURG 5006 - Introduction to Surgery - Fort Collins Branch Campus (1-2 Credits)

Introduction to general surgery and a variety of surgical specialties with an emphasis on foundational skills and knowledge development. Weekly lectures given by Department of Surgery faculty from Poudre Valley Hospital and Medical Center of the Rockies in specialties such as ENT surgery, trauma surgery, surgical oncology, plastic and reconstructive surgery, urology, and orthopedics. An additional skills session will be provided to introduce students to surgical instrumentation and basic surgical skills.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

### SURG 5094 - Department of Surgery Summer Research Program (2-12 Credits)

Department of Surgery Mentored Summer Research Program. You will be paired with a faculty mentor for a specific scholarly research project, guided through the completion of the project, and culminate in a research symposium.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

### SURG 6660 - Career Elective in UROL (1 Credit)

Students will attend 2-3 urology outpatient clinics held at the UCH on Wed and Fri afternoons and one half or full day in the UCH OR (Mon, Tues or Thurs). 12.5 hours of observation split between OR and clinic.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

### SURG 8000 - Gen Surg Univ AI (8-24 Credits)

4-12 wks. Max:4. This course can meet Sub-I qualifications. Students perform intern responsibilities on General Surgical Service at University of Colorado Hospital. Students alternate night call, write orders on assigned patients and participate in preoperative, operative and postoperative care of inpatients.

Grading Basis: Medical School

Repeatable. Max Credits: 24.

### SURG 8001 - Gen Surg DHMC AI (8-12 Credits)

4 or 6 wks. Max:3. This course can meet Sub-I qualifications. Join an Acute Care Surgery Team at a Level 1 Trauma Center. Course emphasizes pre-operative evaluation, operating room decisions and postoperative care outside the ICU. Student will attend clinics, rounds, conferences and surgical procedures.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

Typically Offered: Fall, Spring, Summer.

### SURG 8002 - Gen Surg St Joseph's AI (8 Credits)

Held at Exempla St. Joseph Hospital with emergency & elective surgery. Emphasize pre- and postoperative care. Graduated operating room experience and exposure to skills lab. Active participation in surgery clinic. Housestaff team assignments with assigned faculty mentors. Active daily conferences, including Grand Rounds and M&M.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

### SURG 8008 - Advanced Cardiothoracic Surg (8 Credits)

4 wks. Max:2. This course can meet Sub-I qualifications. Adult cardiac and general thoracic surgery and critical care monitoring on the Cardiothoracic Service at UH and Denver VAMC. Students will participate in preoperative, operative and postoperative care.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

### SURG 8010 - Burn Critical Care/Surg (8-12 Credits)

4 or 6 wks. Max:1. This course can meet Sub-I qualifications. Acting sun-intern on Burn Service, working with Burn and related Surgical Critical Care cases. A high level of patient care responsibility, including bedside procedures, burn care and line charges. Work with attending faculty, and gain a multidisciplinary approach to burns.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

### SURG 8011 - Hand Surgery (8 Credits)

Max:1. The students will participate in all aspects of the hand service including the emergency room, outpatient clinics, inpatient/outpatient operative and non-operative treatment. Emphasis is on acute hand and upper extremity diseases, trauma, their treatment and rehabilitation.

Grading Basis: Medical School

### SURG 8012 - Advanced Urology (8-16 Credits)

4 wks. Max:4. This course can meet Sub-I qualifications. All students are required to rotate at hospitals, participate and perform physical exams, follow-up, clinic and surgeries. All Urology Conferences are mandatory. The Chief Resident, under supervision of the Attending, guides educational experiences.

Grading Basis: Medical School

Repeatable. Max Credits: 16.

### SURG 8015 - Pediatric Surgery (4-12 Credits)

2,4, or 6 wks. Max:1. Student will assume major clinical responsibility for pediatric surgical patients, will work with housestaff, share patient care and work-ups, act as liaison to families, attend operations and teaching conferences, and actively participate in the surgical management of infants and children.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

### SURG 8019 - Plastic Surgery (8 Credits)

Max:1. Students learn basic principles of wound healing, care, and management; management and reconstruction of maxillofacial trauma; head and neck cancer; congenital anomalies; tissue transplantation; cosmetic surgery; and plastic/reconstructive management of post-burn and post-surgical patients. Prereq: IDPT 7050.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

### SURG 8021 - Surgical Critical Care AI (8-12 Credits)

4 wks. Max:2. Assigned to surgical ICU, work with critical care residents, fellow and staff. Students gain experience in resuscitation, hemodynamic monitoring, mechanical ventilation, nutritional support, bedside ultrasound and all aspects in care of critically ill surgical patients.

Grading Basis: Medical School

Repeatable. Max Credits: 12.

### SURG 8022 - Visiting Virtual Urology Rotation (4 Credits)

Virtual introduction to Urology, the field of diseases of the male and female urinary tract and the male reproductive system.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.



**SURG 8030 - Transplant Surgery (8 Credits)**

2-4 wks. Max:3. Medical student will round with transplant team, which includes: Surgeons, Nephrologists, and Hepatologists. They will be exposed to all aspects of transplant care including preoperative work up, donor surgery, transplant surgery, post-operative care.

Grading Basis: Medical School

Repeatable. Max Credits: 8.

Typically Offered: Fall, Spring, Summer.

**SURG 8050 - Trauma Surgery - CSB (4-8 Credits)**

Patient care in emergency surgery/acute care surgery and trauma. Student will participate with inpatient, outpatient and clinic patients. Student will see pre-op, post-op, and emergency patients. Only open June and July. Enrollment limit June and July: 3. Enrollment limit if offered August-May: 1.

Grading Basis: Medical School

**SURG 8051 - Plastic Surgery - CSB (4 Credits)**

Patient care in both emergency, plastic surgery such as acute major lacerations, cartilage repair, bone repair of face, skin grafting, flap repairs with soft tissue loss. Patient care in elective plastic surgery including all cosmetic surgery. Instructor consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall, Spring, Summer.

**SURG 8052 - Surgical Critical Care - CSB (4-12 Credits)**

The surgical care clerkship involves the student in the management of medical technology and coordination with a multidisciplinary staff in evidence-based, goal-oriented, humanistic treatment of critical illness. Instructor consent required.

Grading Basis: Medical School

Typically Offered: Fall, Spring, Summer.

**SURG 8100 - Surg Elective Away (4-8 Credits)**

This Surgery elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 4 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 16.

Typically Offered: Fall, Spring, Summer.

**SURG 8600 - Research in Surgery (4-24 Credits)**

2-12 wks. Contact department for further course information. Prereq: The student must receive prior approval from the Associate Dean for Student Affairs and course director to add course.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

**SURG 8630 - SURG Research Away (4-24 Credits)**

This Surgery research elective will be held at a site in Colorado, another state, or internationally. Students must obtain departmental approval one month prior to the start. Additionally, international sites must be preapproved by Student Affairs. Offered 2, 4, 8 or 12 weeks.

Grading Basis: Pass/Fail with IP

Repeatable. Max Credits: 24.

Typically Offered: Fall, Spring, Summer.

## Surgical Dentistry (DSSD)

**DSSD 5101 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 5102 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSSD 5103 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSSD 5501 - Clinical Correlations (0.1-5 Credits)**

This course provides an overview of the major pathologies associated with each human body system, and possible oral manifestations and dental treatment considerations associated with these pathologies.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSSD 5502 - Lifelong Learning in Dentistry (0.1-5 Credits)**

This course focuses on decision making in dentistry, the concepts section of the course will be presented and discussed segmentally through presentation of a research report on current hot topics.

Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 5503 - Introduction to the Electronic Health Record (0.1-5 Credits)**

This course will enable students to demonstrate a basic proficiency of the use of the electronic health record (axiUm). Department consent required.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 5505 - Introduction to Clinical Dentistry 2 (0.1-5 Credits)**

This course will continue to prepare students for clinic. Topics covered provide a foundation for the practice of dentistry including Oral Health Literacy, Resiliency, Ergonomics and Training in 4-handed Dentistry including a Clinical Assist Session.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSSD 6101 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 6102 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSSD 6103 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSSD 6600 - Clinical Dental Pharmacology (0.1-5 Credits)**

Integration of basic drug mechanisms with fundamentals of clinical pharmacology and patient care.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.



**DSSD 6604 - Pain Control 1 (Local Anesthesia) (0.1-5 Credits)**

The anatomy of the nerve supply to the teeth and associated structures is covered. The techniques for administration of local anesthesia to the maxilla and mandible are demonstrated by the faculty and performed by the student.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSSD 6608 - Prevention and Management of Medical Emergencies (0.1-5 Credits)**

The prevention, diagnosis, and management of medical emergencies are presented.

Grading Basis: Letter Grade with IP

Typically Offered: Spring.

**DSSD 6610 - Pain Control 2 (Nitrous Oxide Analgesia) (0.1-5 Credits)**

Pharmacological indications and contraindications and prevention and treatment of complications relating to use of nitrous oxide is presented.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSSD 6612 - Orofacial Pain (0.1-5 Credits)**

This course is designed to acquaint the student with the evaluation, diagnosis, management, and pathology of the temporomandibular joint. Emphasis is on the multidisciplinary nature of treating disorders of the TMJ.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSSD 7101 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 7102 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSSD 7103 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

**DSSD 7712 - Dental Pain and Emergencies (0.1-5 Credits)**

This course covers the diagnostic and treatment consideration for the management of the patient in pain and other emergency problems encountered in general dentistry. Independent study assigned by course director.

Grading Basis: Letter Grade with IP

Typically Offered: Fall.

**DSSD 8011 - Clinical Emergencies 1 (0.1-5 Credits)**

The patient who presents with oral pain is evaluated and relief of discomfort is provided by the student under the supervision of the dental faculty.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 8101 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Fall.

**DSSD 8102 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Spring.

**DSSD 8103 - Individualized Study in Dentistry (0.1-10 Credits)**

Individualized course instruction to meet the needs of student.

Grading Basis: Pass/Fail with IP

Typically Offered: Summer.

## Toxicology (TXCL)

**TXCL 7310 - Fundamentals of Pharmaceutical Sciences (3 Credits)**

This core course explores key aspects of Pharmaceutical Sciences.

Major themes will focus on macromolecular interactions, pharmaceuticals, pharmacodynamics, apoptosis, signal transduction and immunology.

Critical thinking and problem solving skills will be emphasized via lectures discussion, and computer-based data analyses. Crosslisted: PHSC 7310.

PHSC 7310.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7320 - Physical Pharmacy & Pharmaceutical Sciences (3 Credits)**

This course is designed to provide students with a thorough overview of physical chemical principles vital to Pharmaceutical Sciences; a course for someone whose research efforts will involve pharmaceutical development and/or the evaluation of drugs. Cross listed with PHSC 7320.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**TXCL 7321 - Careers in Toxicology (1 Credit)**

This course builds upon and expands student knowledge relating to career trajectories within the toxicological sciences. Knowledge and experiences gained from this course will enable the student to make a more informed decision regarding the career choices available to them.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**TXCL 7322 - Molecular and Target Organ Toxicology (3 Credits)**

This course is designed to provide a foundation in molecular mechanisms of toxicity. Biochemical mechanisms underlying toxicity will be analyzed and integrated with discussions of reactive metabolites, oxidative stress, signal transduction, cell death and organ specific toxicity. Prereq: Discussion with and consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7323 - Environmental and Target Organ Toxicology (2 Credits)**

The course is designed to provide a fundamental understanding of environmental-related toxicants (e.g. solvents, pesticides, metals, radiation) with emphases on the molecular mechanisms underlying their organ specific toxicity and on risk assessment. Prereq: Discussion with and consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

**TXCL 7325 - Current Topics in Toxicology Research (1 Credit)**

This is a mandatory 1-credit hour course for Toxicology program graduate students. Each student is expected to lead one discussion per year, papers discussed will be authored by the upcoming Toxicology seminar series speaker. Grade given after Spring semester.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 15.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**TXCL 7330 - Development of Drugs and Biologics (3 Credits)**

A survey course designed to introduce students to pharmacokinetic and pharmacodynamics principals used in drug research and development by faculty of the Skaggs School of Pharmacy, Department of Pharmaceutical Sciences. The Phoenix Winnonlin Computer software, is used to complete homework. Cross listed with PHSC 7330

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7340 - Ocular Physiology, Pathophysiology & Pharmacology (1 Credit)**

This interactive course will survey major diseases of the vision system. Lectures will cover the physiological basis for disease and current treatment options being used in the clinic, with emphasis on opportunities for new strategies to treat and prevent disease.

Grading Basis: Letter Grade

Typically Offered: Summer.

**TXCL 7353 - Immunology: Immunotoxicology and Immunopharmacology (2 Credits)**

This course is designed to introduce students to basic immunology principles used in drug research and development, and provide essential knowledge on the immune response, its diagnosis and its modification by drugs and chemicals.

Grading Basis: Letter Grade

Typically Offered: Fall.

**TXCL 7400 - Ethical Issues in Toxicology and Pharmaceutical Sciences (1 Credit)**

The purpose of this course is to expose students to ethical issues in the fields of Toxicology and Pharmaceutical Sciences. Emphasis will be placed on research conduct, animal use, and other timely issues relevant to these fields.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7452 - Introduction to Clinical Pharmacology (3 Credits)**

The course provides students with a foundational knowledge of clinical pharmacology, including pharmacokinetics, drug metabolism, assessment of drug effects, optimizing patient therapy and drug discovery and development. It is grounded in weekly topical lectures, supplemented by readings, discussion and assignments. Requisite: Permission of Course Director. (crosslisted with PHSC 7452)

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

**TXCL 7475 - Advanced Topics in Toxicology (1-6 Credits)**

Considers special topic of current interest in toxicology. Course may be repeated for credit with instructor's consent. Prereq: Consent of Instructor/Program Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 13.

Typically Offered: Fall.

**TXCL 7564 - Environmental Risk Assessment and Applied Toxicology (2 Credits)**

Provides students with experience in risk assessment, environmental toxicology for public health and regulatory decision making. Topics include comprehensive human health risk assessments, baseline/probabilistic statistics, ecological risk assessment activities associated with emergency action, medical monitoring, role toxicology plays in courtroom.

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 7565 - Applied Statistics for Pharm Science and Toxicology (2 Credits)**

Students will learn several basic statistical techniques for analyzing data including when and how to use them, the appropriate assumptions for these methods, and how to clearly articulate their statistical results in the context of toxicology and pharmaceutical sciences studies. Prerequisite: Pharmaceutical Sciences and Toxicology graduate students

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

**TXCL 7575 - Drug Development for the Toxicologist (2 Credits)**

Course will provide an understanding of regulatory obligations required for submitting an N.D.A. as well as discussions related to additional corporate roles including activities for in vivo study conduct & due diligence review for licensing opportunities. Prereq: TXCL 7322

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 7650 - Research Rotation in Toxicology (1-5 Credits)**

Research work in toxicology.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

**TXCL 7665 - Pharmacokinetic Principles & Applications (3 Credits)**

A survey course to introduce students to pharmacokinetic and pharmacodynamics principles used in drug research and development. Taught by faculty from the School of Pharmacy, Department of Pharmaceutical Sciences. Phoenix Winnonlin Computer software will be used in the course. Cross-listed with PHSC 7665

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 7750 - Proteomics & Metabolomics for Biomarker Discovery (3 Credits)**

An introduction to mass spectrometry followed by a focus on quantitative metabolomics or proteomics workflows. Workflows comprise sample preparation, data acquisition, and data analysis. Additional topics include imaging mass spectrometry, lipidomics, post-translational modification analysis, and clinical applications. Offered odd years.

Grading Basis: Letter Grade

Typically Offered: Fall.

**TXCL 7751 - NeuroToxicology (2 Credits)**

NeuroToxicology offers a specialization in neuroscience-related toxicology; Topics (basic and applied) include: neuropharmacology (affect of ethanol/drugs), neurophysiology (metabolic poisons), developmental neurotoxicology (pesticides and neurodevelopmental disorders, radiation), and behavioral toxicology (cognitive function).

Grading Basis: Letter Grade

Typically Offered: Spring.

**TXCL 8990 - Doctoral Thesis (1-10 Credits)**

Doctoral thesis work in toxicology. Prereq: Consent of the instructor.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 10.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

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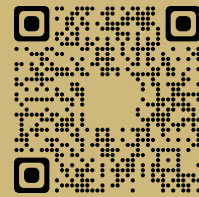
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