

COURSE SYLLABUS
MENTORED SCHOLARLY ACTIVITY (MSA) CURRICULUM
IDPT 5090/5091/6090/7090/8090

The Mentored Scholarly Activity – Scholarship for Life-Long Learning

The UC-AMC School of Medicine's curriculum includes a four-year longitudinal course requirement for all students to pursue and complete a mentored scholarly project. The MSA project culminates with a Capstone Presentation prior to graduation. The MSA project is aimed at fostering self-directed, life-long learning. Students will do an in-depth scholarly project in an academic area of interest related to medicine or health care with the mentorship of a CU faculty member. MSA requirements can also be satisfied through the successful completion of the MSTP program or the School of Medicine Research Track. For more detailed information on the MSA and resources, please refer to [the MSA Website](#).

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For questions related to the MSA:

You are welcome to email any of the Associate Directors directly, or email the MSA coordinator or contact SOM.MSA@cuanschutz.edu. At least one of us will be available before and after lectures to talk to you, but you can also email or set up a time to talk to us or meet with us individually. E-mails will be checked daily and answered within 24 hours during weekdays whenever possible but may not be answered on weekends. Please check the calendar regularly for session updates and watch for messages in Canvas.

MSA Course Goals

- Demonstrate progress through the Phases and display independence and collaboration.
- Demonstrate ability to formulate a specific problem statement, question, hypothesis or aim.
- Demonstrate ability to work effectively with a mentor.
- Demonstrate ability to critically review and analyze literature on an important scholarly topic.
- Demonstrate ability to prepare a scholarly project with appropriate methods and develop a plan to complete the project.
- Demonstrate ability to synthesize and present results of a scholarly project.

Common Components of all Scholarly Projects

The following components are an important part of any scholarly project. They do not necessarily have to be followed in sequence.

- Meet with your Associate Director to explore potential projects and strategies.
- Identify your general goals—what do you want to learn, where do you want to go, what kind of mentor would you like to work with?
- Meet with one or more potential mentors to refine your ideas.
- Identify a question, need, or idea that you could explore and ultimately make a new contribution.
- Define a hypothesis.
- Define objectives that are realistic and achievable.
- Demonstrate an understanding of the existing scholarship (both theory and methods) relevant to your project.
- Develop a protocol with a clear hypothesis and set of objectives and a work plan that will lead to meeting them.
- If human research subjects are involved, obtain [COMIRB](#) approval.
- Develop the necessary skills and support to do the work.
- Allocate the time and effort needed to complete the project on time.
- Apply the scholarly methods effectively.
- Modify the project objectives and methods in response to changes, learning and experience.
- In a report written in a style appropriate for your area of scholarship:
 - Describe what is known and unknown on your topic as background
 - Describe and analyze the results or products of your project;
 - Critically evaluate your work in light of relevant evidence and indicate how it contributes to relevant fields of scholarship;
 - Identify areas for improvement, further study and exploration.
- Clearly communicate your work to others in the [capstone presentation](#) and in other forums.
- Consult with your mentor and [Associate Director](#) regularly for support and help in reaching your goals.

Group MSA Projects

It is acceptable for groups of students to work on MSA projects. These groups may be composed of students in a single class or may be spread out over several classes. The latter is particularly appropriate for projects that have a long lead time for administrative approval (e.g. international research for students in the Global Health Track) or that involve ongoing interventions (e.g. a school curriculum change). The first class may lay

all the groundwork for the project and subsequent classes may then move to data collection and to expansion to other project goals.

If groups of students work on a project, a couple of points need to be kept in mind regarding MSA Plan Forms, the final paper, and capstone:

- 1) Teams of students may do a Mentored Scholarly Project together.
- 2) Each student must independently submit an MSA Comprehensive Plan Form that defines their particular role in the project.
- 3) Each student must make his/her own scholarly contribution to the work.
- 4) A single paper, published or unpublished, can be submitted to describe the work on a project that involves several students. This authorship of this paper should reflect the contributions of the participants. Each student on a group project will submit an additional 1-page supplement that describes their role in more detail and describes what they have learned as a result of participation in the project.
- 5) A group of students in the same class can use the same physical poster for their capstone presentation. Each student will, however, present the findings to the reviewers separately. Since there are three poster sessions, a project that involves more than 3 students in a single year will need to prepare an additional poster so that each student has the opportunity to present the work independently.

Global MSA Projects

If you are not a member of the Global Health Track, you cannot travel internationally to collect your own data for your MSA. Any additional questions regarding the Global Health Track, please contact the Director or Associate Director for Global Health (listed above).

MSA Course Requirements and Due Dates

***Please note that all below due dates are tentative and subject to change.*

MSA Due Dates

AY 2022-2023

Phase 1 (IDPT 5090): Class of 2026

- Fall 2022 Assignments
 - o MSA Introduction Lecture – September 23, 2022
 - o Interest Form – October 3, 2022
 - o One-on-ones – October – November, 2022
 - o Meet with potential mentors – asynchronous
- Spring 2023 Assignments
 - o Capstone Attendance (as student judge) – April 24, 2023
 - o Phase I Project Outline – April 14, 2023
 - o Online Research Module – May 15, 2023
 - o Meet with potential mentors, begin to formulate project ideas - asynchronous

Summer Elective (IDPT 5091): Class of 2026

Note: The summer elective is optional. If completed, this course fulfills the Fall Phase 2 IDPT 6090 requirements and the student would not be enrolled for IDPT 6090 during the Phase 2 Fall term. Please see detailed information regarding Summer Elective IDPT 6090 beginning on Page 8 of this document.

- Summer Elective Orientation – June 24, 2023. Time and location to be determined.

- Abstract and Annotated Bibliography – August 18, 2023 or by WIP presentation
- Work in Progress (WIP) Slide Upload — August 18, 2023
- Work in Progress (WIP) – August 17-18, 2023

Phase 2 (IDPT 6090): Class of 2025

- Fall 2022 Assignments
 - o MSA Introduction Lecture – September 6, 2022
 - o One-on-Ones with MSA Directors – October– November, 2022 (only for students who did not complete Summer MSA Elective course.)
- Spring 2023 Assignments
 - o Watch Video Recording: How To Do A Literature Review and submit annotated bibliography – April 1, 2023

Phase 3 (IDPT 7090): Class of 2024

- Fall 2022 Assignments
 - o N/A
- Spring 2023 Assignments
 - o Phase III Project Update – December 1, 2022
 - o Phase III Narrative Reflection March 15, 2023

Phase 4 (IDPT 8090): Class of 2023

- Fall 2022 Assignments
 - o Draft Paper – December 1, 2022
- Spring 2023 Assignments
 - o Final Paper – February 1, 2023
 - o Capstone Data Entry Form – April 3, 2023
 - o Upload Capstone Abstract and Poster Files – April 10, 2023
 - o Capstone Poster Presentation – April 24, 2023

Early Completion Option

The Final MSA paper may be turned in at any time and students may also present at an earlier Capstone. If they do this they still will be required to participate in their class's Capstone as evaluators. This allows students increased flexibility to submit the final paper and complete the oral/poster presentation at any year-end Capstone event if project is completed prior to 4th year.

The MSA is a Pass/Fail course

Each student will receive a grade (Pass/Fail) on their transcript at the end of each semester based on their progress through the course requirements. You must complete each component of the MSA requirements by each assignment's deadline to receive a passing grade. If there are issues with an assignment deadline due to extenuating circumstances, this must be discussed with the MSA team prior to the deadline to determine the course of action. Please note that all feedback on assignments is through the MSA Canvas Course. Make sure that you have all of the [MSA Canvas Course](#) notifications on, to ensure you are receiving your grade and/or feedback information. Edits may be needed on incomplete submissions, so to it is important that you check your assignments in Canvas for any comments from the MSA Faculty and act on them promptly.

Grade Definitions

The School of Medicine uses the following grades for the official transcript for the MSA Course: Pass (P), Pass with Remediation (PR), Incomplete (I), In Progress (IP), Fail (F), and Withdrawal (W). The Block, Course and Clerkship Directors have the latitude to not use the full range of grades available.

Unless otherwise specified, “grades” once assigned become a permanent part of the student’s academic record and transcript. Incomplete (I) and In Progress (IP) are temporary grades which will be permanently replaced by one of the other listed grades.

Transcript Grades	Mentored Scholarly Activity (Phases I, II, III, and IV)
General Info	Mentored Scholarly Activity (MSA) is a longitudinal course that runs across Phases I, II, III, and IV. Students receive a grade for each semester of each Phase (Fall, Spring).
Honors (H)	Not used.
High Pass (HP)	Not used.
Pass (P)	A grade of Pass is given to a student whose performance meets the minimum requirements established by the MSA.
Fail (F)	A grade of F is given when a student's performance is clearly below the passing standards of the MSA, and minimum requirements are not met.
Pass with Remediation (PR)	This grade is assigned when the student has either received an “F” and has successfully remediated OR when an “I” has originally been assigned (due to failure to complete course requirements) and these requirements are now successfully completed.
In Progress (IP)	An ‘In-Progress’ grade is used when a student cannot complete course requirements due to illness or other extenuating circumstance as determined by the Course Director.
Incomplete (I)	A temporary grade of incomplete is given when a student has not successfully completed all of the course requirements at the end of the course AND requires remediation as determined by the Course Director in order to meet the minimum requirements.
Withdrawal (W)	<ul style="list-style-type: none">• Must be recommended by appropriate Assistant Dean and approved by Associate Dean of Student Life.• Must be in good academic standing.• Must occur before the last 2 weeks of the Block, Course, or Clerkship. <p>Student Promotions Committee must be notified by the Associate Dean of Student Life.</p>

Required only if your project includes human subjects

- CCTSI Scientific Advisory and Review Committee (SARC)- If your project involves human subjects beyond the exempt category, it first needs to be review by SARC. The purpose of SARC is to evaluate the scientific merit of research protocols. After receiving scientific and feasibility approval by SARC, it then moves on for approval by COMIRB (see next bullet). <https://cctsi.cuanschutz.edu/>
- Colorado Multiple Institutional Review Board ([COMIRB](#)) – If your project involves human subjects of any kind, you must complete [COMIRB](#) training/certification on line and plan ahead to submit your protocol as soon as possible.
- IRB applications for students completing international research projects the summer between Phase I and Phase II must be submitted by March 15th.

- If you are submitting a Global Health protocol, it must be reviewed by the Global Health Director prior to submission to [COMIRB](#).

MSA Mentor Expectations

- Meet with students to explore potential scholarly projects
- Determine if you are the person to mentor the project
- Develop an agreement, including meeting/communication schedule, authorship details and develop your professional relationship
- Review student's critical literature reviews
- Help the student develop a scholarly and doable project
- Review and provide feedback on the student's scholarly proposal, abstract, bibliography, paper and poster
- Submit verification of progress with each plan form submission, rough draft and final draft papers (verification can be sent via e-mail to SOM.MSA@cuanschutz.edu)
- Help develop and review the work plan and timing
- Communicate with the MSA Associate Director
- Review the student project and plan form
- Submit recommended grades to Associate Director
- Help the student gather, analyze and prepare for capstone presentation
- This is a 4 year project-- the mentor and student should work together for that entire period
- Always be attentive to the student's rigor and professional development
- Students need at least one mentor/co-mentor that is CU Faculty on your project. Associate Directors are not automatically your PROJECT mentors (and do not usually mentor MSA projects directly).

Associate Directors will work with the mentor-student teams to provide ongoing support.

Narrative Comments and Assessment

Narrative comments from individual MSA mentors will be obtained in Phase II and Phase IV. Narrative comments from MSA Directors will be submitted for each student's Work In Progress session and for their initial draft of the MSA paper (required in Phase IV). This will be used to obtain faculty input and to jointly develop individual student goals to improve their skills.

Library Resources

The librarians can help MSA students with:

- Problem identification and focus (as far as helping with preliminary searching to identify whether a topic has been covered previously in the literature)
- Question formulations (asking answerable questions)
- Translating the question into a search strategy
- Identifying resources for literature review
- Organizing and managing citations and article reprints or other resources
- Accessing software for various research needs (eg SAS/SPSS, Endnote) and referral to training resources
- Understanding manuscript style requirements
- Identifying opportunities for publishing or sharing research

Helpful information is available at: <https://library-cuanschutz.libguides.com/som/msa>

- Contact one of the MSA program librarians for an individual consultation. Consultations generally last one hour and may include discussion of your research topic, suggested resources for that topic, identification of key search terms, development of a search strategy, set up of a PubMed "My NCBI" account, and demonstration of resources such as PubMed or Google Scholar.
- Sections of immediate interest: Finding a Mentor, Online Tutorials, recommended books (reference resources on how to do research), information on software resources for the research process, statistical resources,

EndNote and information on MyNCBI for organizing references, and other advice for organizing and Electronic Reprint File.

- Please email nina.mchale@cuanschutz.edu for suggestions or improvements.

To make an appointment with the librarian:

Students should identify themselves as working on the MSA project when contacting the library.

Basic (Laboratory Based) Science Research: [Wladimir Labeikovsky](#), PhD (303-724-2114)

Clinical Science Research: [Kristen DeSanto](#), MSLS, MS, RD, AHIP (303-724-2121)

Bioethics, Humanities, Arts & Education Research: [Christ Piper](#), MLIS, AHIP (303-724-2170)

Epidemiology, Public & Community Health Research: [Ben Harnke](#), MLIS (303-724-2146)

Global Health Research: [Nina McHale](#), MSLS, AHIP (303-724-2133)

Writing Center Resources

The campus [writing center](#) is an excellent resource to help you with your rough and final draft papers. To get more information or to [make an appointment](#) with the writing center.

- [Online Drop Box](#), The Online Drop Box is an asynchronous service whereby students submit a document and receive feedback in about four business days. CU Anschutz students might be especially interested in our [Principles of Scientific Writing Handout](#). More handouts available on the [How-To Guides page](#).

Statistical Resources

The Colorado Biostatistics Consortium (CBC) has partnered with the MSA program to provide guidance on how to design and analyze your MSA research project. Through the MSA Consulting Clinics, the CBC will help you move beyond a general research question in order to craft a testable hypotheses. You will develop a research plan consisting of your study design details, the specific data to be collected, and the methods you will use to analyze your data. During these clinics, you will also receive assistance with implementing your analysis and interpreting your findings. Each clinic will be a mix of small group (2-3 individuals) and one-on-one interactions with biostatistics graduate students dedicated to answering your specific questions.

[Biostatistical support](#) - The Research Consulting Laboratory is available for teaching on statistical approaches without charge to MSA students. Please be sure to identify yourself as a MSA student.

Registration is required, and must be done at least 48-hours in advance. To get more information or to sign up for a clinic with the CBC, please visit [here](#).

For projects requiring larger amounts of biostatistical analyses, MSA students can apply for an MSA Small Grant from the CBC for assistance in analyses. Click [here](#) for more information.

Course Evaluations

Students will be required to complete online evaluations. Class representatives and class officers will meet with the course directors as necessary to provide feedback.

How will students be graded in the Mentored Scholarly Activity Course?

For full description of grading policy, please refer to the Phase I Essentials Core General Information.

EXAMPLES of SCHOLARSHIP

To see examples of previous projects, you can visit the MSA website page dedicated to previous year's [Capstone Projects](#).

**Phase I
IDPT 5091
Summer 2023**

Note: Summer IDPT 6090 elective is optional. If completed, this course fulfills Fall Phase 2 IDPT 6090 requirements. Students completing Summer IDPT 6090 would not be enrolled for IDPT 6090 during Phase 2 Fall term.

Goals:

- Demonstrate ability to formulate a specific problem statement, question, hypothesis or aim.
- Demonstrate ability to work effectively with a mentor.
- Demonstrate ability to critically review and analyze literature on an important scholarly topic.
- Demonstrate ability to prepare a scholarly project with appropriate methods and develop a plan to complete the project.
- Demonstrate ability to synthesize and present results of a scholarly project.
- Demonstrate progress through the Phases and display independence and collaboration.

Learning Objectives:

- Present work in progress (WIP) to peers and faculty in an oral presentation.
- Effectively respond to comments and questions from peers and faculty about your scholarly work.
- Demonstrate effective interaction with the mentor on the scholarly project.

Benchmarks

Summer IDPT 6090 Requirements and Timeline: All students must complete the following requirements by the end of the course:

Note: All submissions will be electronic.

- **July 24, 2023:** Attend IDPT 6090 Introductory Orientation Course;
- Meet/communicate with your mentor at least bi-weekly. You will be expected to work on your MSA project for 25 hours per week, for 4 weeks.
- **August 18, 2023:** Submit an Abstract and Annotated bibliography (20 references minimum), via Canvas.
- **August 18, 2023:** Upload Work in Progress materials (PowerPoint), via Canvas by 11:59 PM (MT).
- **August 17-18, 2023:** Present status of project and participate in Work in Progress sessions. Specific schedule will be communicated closer to the presentation dates.
- [COMIRB](#) certification and approval notice (if your project requires COMIRB approval).
- Students will be required to complete online evaluations and meet with the course directors as necessary to provide feedback.

Attendance

Attendance is required at the Orientation and one of the WIP presentation sessions as assigned. It will be so designated in Canvas or communicated via e-mail to your UCAnschutz e-mail account. Otherwise you will be expected to organize your own schedule, with guidance from your Associate Director and mentor. Please refer to Phase I Essentials Core General Information for full description of requirements.

Failure to attend a required session will be considered a Professionalism issue:

1st unexcused absence in a Phase – the Assistant Dean, Essentials Core Curriculum will contact the student, the situation will be discussed, and the student will be warned that a second infraction will result in filing a Professionalism Feedback Form.

2nd or subsequent unexcused absence in a Phase – the student will meet with the Assistant Dean, who will file a Professionalism Feedback Form.

At any time during a Phase, if a second Professionalism Feedback Form is filed owing to a student's unexcused absence at a required session, the student's case will be referred to the Professionalism committee.

Having a negative impact on the learning environment, including arriving late for a session or not responding to communications from the MSA team will be treated as a separate Professionalism issue.

Instructions for Abstract Submission

Type your abstract in to a .doc or .pdf formatted document. You will upload this document to Canvas. Simple graphs and tables may be included if applicable.

TITLES AND AUTHORS

The title should be brief, clearly indicating the nature of the study. Do not use abbreviations in the abstract title.

CAPITALIZE ENTIRE TITLE. State all authors' initials and last names, (presenting author first), including the name of the faculty sponsor of the research, other major contributors, and the Department or Institution in which the work was done. Underline presenting author only. After presenting author's name, state degree sought and School or Program. i.e. for Alicia C. Brown, BS, MD Candidate, AC Brown, (BS, SOM).

BODY

Organize the body of the abstract to include a purpose of study, methods used, *summary of results, and conclusions reached. Do not skip a line between the title and body of the abstract.

Indent the first line of text at least three spaces.

*(Note progress to date, issues encountered and implications of those issues in the abstract in cases where results are not yet available).

ABBREVIATIONS

Abbreviations should conform to the Style Manual for Biological Journals (American Institute for Biological Sciences, 3900 Wisconsin Ave., Washington, DC 20016). Place nonstandard abbreviations in parentheses after the full word the first time it appears.

Proper Form

ARRHYTHMIAS OF THE HEART: MECHANISIM(S). AC Brown, (BS, MD Candidate, SOM), JB Green, and RT White, Department of Medicine, University of Colorado, Denver, CO.

Digitalis, potassium (K+), and nicotine induce automaticity and propagation block. The initial event is enhanced conduction.....

Instructions for Annotated Bibliography

These references should be most relevant to your project and used in your final paper and abstract. You will be required to have at least 20 references for your Annotated bibliography and final paper.

The easiest way to conceptualize an annotated bibliography is to imagine what you would write about a paper in a review article on the topic. This typically would be 2-3 sentences about the importance of the article, what the key findings are, the implications of the findings, etc. For this purpose, one wouldn't want a complete summary of the article.

Here's what one might write about a recent NEJM article. 'Followup of glycemic control and cardiovascular outcomes in Type II DM', Hayward RA, et al. NEJM 2015;372:2197-2206.

'This paper describes the findings of long term follow-up (9.8 years) for the VA Diabetes Trial, which did not show any significant effect on CVD events at 5 years. In this analysis, the intervention group had a reduction the primary outcome (HR 0.83, 95% CI 0.70 to 0.99), but no effect on CVD mortality or total mortality. This is another in a series of studies showing limited impact of intensive diabetes control on hard outcomes.'

Instructions for Work in Progress Presentations

For your WIP sessions, prepare a short PowerPoint presentation that should be about 10 minutes long. Here are some helpful tips for what to include:

Disclosures:

- Are there any conflicts of interest for anyone involved in the project?
 - i.e. Your PI/Mentor has a patent on a drug being used in your project.
- If no conflicts of interest, state this.
- If this is human subjects research, COMIRB protocol number or state if have received COMIRB exemption?
- If animals are involved, IACUC?

Background:

- Why am I personally interested in this topic?
- What is the literature in this topic area?
 - Generally talk about why this is important
 - What do we already know?
- What information gaps exist you are addressing in your project?
- What is the historical context for your project?
- If you are doing an intervention, what interventions have been tried before? What were the results?

Specific details about your project:

- What is the specific question you are trying to answer?
 - What are the specific aims of your project?
 - What are your hypotheses?
 - Match your hypotheses to your aims.
- Methodology—How are you going to (did you) answer your research question?
 - Give specific details
 - Who?
 - Population, cell lines, animals, sample size, etc.
 - What?
 - Survey, clinical trial, systematic review, lab technique, art medium
 - Where?
 - How?
 - Mail, in-person, in lab, which primary resources

Accomplishments:

- What have you been able to do thus far?
- What roadblocks have you encountered?
 - What are the lessons learned from this?
 - What have you learned regarding feasibility and limitations of your approach?
 - Consider soliciting audience feedback for future directions.
- If you have results
 - What are the results?
 - What do they mean?
 - How do you interpret them in the context of the existing literature?

Future directions:

- Detailed outline of what is left and needs to be done.
 - Since this is a Work In Progress, what are my next steps?
 - Highlight future research/scholarly activity in this area.
 - Although not required, abstract submission to meeting and publication is encouraged.

Acknowledgements:

- Who do you need to thank for helping you?
 - Mentors, Librarians, Research assistants, Statisticians, Grant Funding or Scholarships



IDPT 6090 Work in Progress Formative Evaluation

Criteria	Definition	Exceeds Expectations	Meets Expectations	Below Expectations	N/A
Significance	Is the significance of the main question, hypothesis, or issue addressed in the project clear (is it important)? Does the work demonstrate a new or improved approach to a problem?	3	2	1	
Methodology	Is the method or approach clearly stated? Is the approach appropriate for the question? Is a hypothesis presented and tested when applicable?	3	2	1	
Results	Are data and/or other observations clear and convincing? For quantitative studies, have the results been subjected to statistical analysis? For qualitative studies, is the analysis of sufficient breadth and depth?	3	2	1	N/A
Discussion/ Future Plans	Are inferences, conclusions, implications, and any future follow-up plans based on the data/observations discussed appropriately?	3	2	1	N/A
Appeal	Is the Presentation appealing? For example, has the presenter chosen quality visuals, used consistent formatting, highlighted major concepts, and used reader-friendly fonts.	3	2	1	
Disclosure	Does the presenter provide a disclosure statement for funding support and/or conflicts of interest?		2	1	
Presentation/ Understanding	What is the quality of the oral presentation? Is the work presented in a well organized, concise fashion? Is the student capable of presenting complex ideas or data in an understandable fashion? How well does the presenter understand the subject based on responses to questions?	3	2	1	
Overall Presentation	What is your reaction to the quality and effectiveness of the poster presentation overall?	3	2	1	