



College of Medicine
Tucson



SCHOLARLY PROJECT HANDBOOK

MED820A - MED820H

A Guide for Students and Mentors

UPDATED November, 2023

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INTRODUCTION & OVERVIEW

The Scholarly Project (SP) is a required 4-year longitudinal course designed to stimulate critical thinking, enhance intellectual acuity and inquisitiveness, and foster excellence in the development of research scholars, clinical scholars, and educator scholars. The SP allows medical students to conduct research with a faculty mentor on a topic of interest in the fields of health and health care.

The overarching goal of the course is to provide all medical students with the necessary educational and practical tools to pursue a highly successful and productive career in clinical and/or academic medicine. The goals of the SP program are as follows:

1. Through completing a research project, students will generate new knowledge using scholarly approaches.
2. Through participation in learning sessions, students will gain a foundation in scientific method, critical thinking, and the responsible conduct of research.
3. The SP will help students refine and differentiate their own career and specialty orientation prior to application for residency.

To achieve these goals, the SP program has three components:

1. A didactic component consisting of lectures, workshops, online modules and completion of training through the Collaborative Institutional Training Initiative (CITI).
2. Assistance from faculty in developing skills necessary to formulate and describe a research question and the methodology to conduct the research.
3. The student Scholarly Project (SP)

The didactic component of the SP will provide all students with an understanding of scholarship in the research, clinical, and educational arenas. This will include but not be limited to the responsible conduct of research. These sessions are also part of Pathways to Health in Medicine, the Evidence-Based Medicine thread, and sessions newly created as part of the SP curriculum.

Students will have access to and training in the use of library resources, as well as to learning experts who can help formulate questions and provide guidance on preparation of abstracts, oral presentations, posters, and other media used to deliver scientific content.

Conducting and completing the SP will provide all students, regardless of their ultimate career path, an enhanced appreciation and understanding of the linkage between research scholarship and health and health care.

COURSE LEARNING OBJECTIVES AND EXPECTED LEARNING OUTCOMES

Learning Objectives

During this course, students will:

- Explain the different forms of scholarship in medical research.
- Describe the basic approach to medical student research, including mentor and topic selection, proposal preparation, progress summaries, and presentations.
- Explain how feedback from mentors and other evaluators is used to improve research methodology and facilitate research progress.
- Demonstrate understanding of the ethical and responsible conduct of research, including investigational review boards, conflict of interest, bias, research misconduct, risk assessment, informed consent, privacy and security, and data reproducibility and management, by successfully completing CITI training modules and attending didactic sessions.
- Describe how research findings are (or are not) incorporated and translated into improving human health, through the clinical practice of medicine.
- Demonstrate how rigorous principles and practices of literature searching are used to create reference lists for their SP
- Describe the principles that both mentors and mentees must understand and adopt for effective mentoring.

Learning Outcomes

Upon completion of this course, students will be able to:

- In conjunction with a mentor, design a research project, based on formulating a research question
- Design a research project that meets the requirements for the ethical and responsible conduct of research, including conflict of interest, bias, research misconduct, risk assessment, informed consent, privacy and security, and data reproducibility and management.
- Incorporate appropriate statistical, analytical and evaluative methods appropriate to the research question and data collected.
- Successfully create a project proposal that meets the requirements established for the Scholarly Project.
- Track research progress, and make appropriate changes in methodology, scale and scope, and timing in order to complete the project in the allotted time
- Create a thorough, current and targeted bibliography for their SP
- Present the findings of their research in presentations (oral, poster, written) for diverse audiences
- Place their research in the context of scientific advancement and, where appropriate, clinical practice.
- Demonstrate effective engagement as a mentee in a longitudinal mentoring relationship.

GENERAL COURSE ORGANIZATION AND STRUCTURE

The Scholarly Project is an 8-semester course (MED820A-820H). Students will receive a grade of Pass, or Incomplete for each semester. All students are required to complete the course with a passing grade in each semester in order to graduate. A grade of Incomplete for a semester will be referred to the Student Progress Committee.

The SP has core requirements, identical for all students, and a flexible structure, that will vary by student:

Core Requirements:

- Complete SP coursework and independent learning requirements
- Meet with SP leadership to discuss SP topic and mentor
- Integrate the SP with a COM Distinction Track, where appropriate
- Identify a SP topic and mentor
- Write a SP proposal in conjunction with a mentor
- Select the appropriate pillar for conduct of the SP
- Submit interim progress reports
- Complete reference searching module
- Submit draft and final deliverable
- Participate in SP Conference during MS4

Flexible Structure:

The timeline for identifying a SP topic, and mentor, will be flexible, and will depend on the student's choice of activities during the SP summer.

1. Some students will develop a proposal and identify a mentor during Spring MS1. They will Conduct research beginning in the Scholarly Project Summer. This applies to students in the Medical Student Research Program (MSRP) and the SAVAHCS Summer Research Program (VA-SRP).
2. Some students will develop a proposal and identify a mentor during the Scholarly Project Summer, as a consequence of their summer experience. This applies to some students doing a Rural Health Rotation or Global Health Rotation, as well as those participating in other summer activities, such as the MSTAR program. They will begin their research partway through the SP summer.

In both cases, students must submit their SP proposal in the week that classes begin for MS2.

CURRICULUM FOR THE SCHOLARLY PROJECT

The curriculum for the scholarly project has three components.

1. Existing Coursework
2. Independent Learning
3. Proposed New Elements

Scholarly Project Timeline

Year	1		2		3		4	
Course	MED820A	MED820B	MED820C	MED820D	MED820E	MED820F	MED820G	MED820H
Instructional Activities								
Didactic Sessions*								
Independent Learning**								
Responsible Literature Searching Module								
Workshops/Seminars***								
Scholarly Project Activities								
Establish a Mentor								
Submit a Proposal								
Scholarly Project Activities								
Submit Background Research								
Submit Progress Reports								
Draft Project Submission								
Final Project Submission								
Research Symposium								

*Didactic sessions will include sessions on: "What is scholarship," "How to conduct research as a medical student," "Regulatory Bodies, Research and You," "Using surveys for research," "Case reports and literature reviews," and "Research in underserved communities." Existing evidence-based medicine sessions will also support the development of the student's scholarship.

**Independent Learning will involve completion of the following topics through CITI online modules: Human subjects training for biomedical investigators (includes "History and Ethical Principles" and "Federal Regulations for Protecting Research Subjects"), "Native American Research," "Introduction to RCR," "Authorship," "Collaborative Research," "Conflicts of Interest," "Data Management," "Mentoring," "Peer Review," "Plagiarism," "Reproducibility of Research Results," "Research Involving Human Subjects," "Research Misconduct," and "Using Animal Subjects in Research"

***Workshops attended may vary by individual's interest and project. Example workshops include sessions on using library resources for research as well as trainings offered through UAHS Research Administration. Departmental seminars may also be relevant.

Progress Timelines:

By the end of the Scholarly Project Summer, the student should have created a scholarly question and identified a mentor. Both the question and the mentor must be approved by Scholarly Project Leadership (Director or Assistant Directors)

Within Med 820 C and D, the topics of data collection and analysis will be explored. By the end of Med 820 E, the student must submit a bibliography (10 references) and project overview (abstract, narrative summary, outline, or manuscript); the Scholarly Project Leadership will give feedback.

1. Data Collection
2. Creating Surveys using Qualtrics
3. Basic Statistics

The student will also be required to check in at least 1x a semester with their mentor to discuss progress on the topic.

Med 820 E,F: Basic Writing

Med 820 G,H: Publishing/Deliverable/Presentation

DISTINCTION TRACKS & THE SCHOLARLY PROJECT

Students will have the option of conducting their SP under the umbrella of a specific DT, or independent of a specific DT.

- In the former case, each DT will define how the SP integrates with the DT requirements.
- In the latter case, students will complete the SP independent of DT requirements.

This structure permits substantial flexibility in how students allocate their efforts respectively to the SP and individual DT.

Conceptually, DT within the COM serve as a platform for students to distinguish their interests along thematic lines that characterize the UA COM, Tucson. Practically, this provides a framework to guide students in selecting a mentor and a scholarly project, as well as determining the timing of and deliverables for the SP.

All DTs excluding the Community Service DT and Integrative Medicine DT will participate.

Each DT has a separate set of requirements for achieving distinction in the track. The SP uses a flexible structure to facilitate integration of the DT and SP requirements. Of particular importance, the DTs vary substantially in how the Scholarly Project Summer is organized:

- The Medical Student Research Program, a component of RDT, requires students to identify a project and mentor prior to the Scholarly Project Summer. Those pursuing the RDT without participating in the MSRP will have more flexibility in the organization of the Scholarly Project Summer.
- The RDT, GHDT, and BLMSDT typically require a clinical experience during the Scholarly Project Summer. For students conducting their SP in those tracks, they will usually develop their SP topic and identify a mentor during the Scholarly Project Summer.
- The MEDT and LIDT do not specify the structure of the Scholarly Project Summer.

ORGANIZATION OF SCHOLARLY PROJECTS RESEARCH

Criteria, Guidelines, & Collaborative Projects

General Criteria:

1. Each student will conduct a separate SP.
2. The topic of the SP is up to the student, and should be based on a combination of interests, experience, abilities and synergy with the those of the faculty mentor.
3. The SP must be formulated to ensure completion during the 4-year matriculation.

Collaborative Projects

While many SP will be collaborative, involving multiple individuals (faculty, graduate students, undergraduate students, research assistants, others), in general no two students can work on exactly the same project, defined as having the same specific hypothesis. All mentors must, with student input, determine and specify the precise role of the student in ongoing or future collaborative projects, including student responsibilities and tentative discussion of authorship/credit for publications.

Poster

All students will be required to prepare a poster describing their SP, for presentation during the SP showcase in year 4.

GUIDE TO SELECTING A MENTOR

For your Scholarly Project

What makes a good project mentor?

Good mentors are experienced scientists who guide your research, but also challenge you to develop your independence. A good mentor will help you define and focus your research goals, and then support you in your quest to achieve them. He or she will share knowledge and inspire you, help you plan your project to complete it on time, provide regular constructive feedback on your project, writing and progress, and, hopefully, inspire you. In addition to promoting your research, your mentor should help you to develop your career goals. Above all, your project mentor should be someone you can completely trust to always keep your best interest in mind.

Good mentors have different styles and approaches in guiding their mentees, so there is no one right or wrong set of characteristics to look for in selecting your mentor. Personal comfort and rapport with the mentor is ideal, but neither necessary nor sufficient for success. Keep an open mind, realizing that success in research requires a skill set that is different than, although often complementary to, being a good teacher and/or clinician.

The SP Director and Assistant Directors, along with Distinction Track Directors, course instructors, and other faculty will be important resources in helping you identify a potential mentor. They will assist you in the steps below.

How do you identify if a prospective mentor meets these characteristics?

Experienced researchers typically make the best mentors. Experience in this context is not a direct function of faculty rank, age, or duration of faculty position. Publishing papers in peer-reviewed journals is the most credible evidence that the individual has research credentials. Hence, you should look at the publication record of any individual you are considering as a research mentor.

At the same time, most faculty (particularly clinical faculty) without much if any direct research experience have extensive content knowledge in their specialty and a good understanding of important questions to address through research. Co-mentorship, in which an experienced researcher is engaged as part of the mentorship process, can be a particularly effective strategy in this circumstance.

How do you approach a potential mentor?

Regardless of the response from your email, and the need (or not) to search for another mentor, it is incumbent that you meet either in person (ideal) or virtually with the potential mentor. In that interview, take advantage of this opportunity to learn as much as possible about the PI and the research environment. In particular, it is important to determine whether his or her approach to mentoring matches your needs and expectations. Ask about other students who have worked under this mentor. If possible, meet with or contact those students to learn about their experiences.

Experienced researchers will typically have ongoing projects that they will describe to you, and will make suggestions for some new aspect of the project that could constitute your SP. They may or may not be willing to generate an entirely new project. Be flexible in your thinking about this.

FACULTY/MENTOR RESPONSIBILITIES

The following is the guide explaining the purpose of the SP from the mentor perspective, and the mentor responsibilities.

To Potential Scholarly Project (UACOMT) Mentors: Thank you very much for your interest in helping our medical students complete a scholarly project during their time at UACOMT. The goal of the Scholarly Project (SP) is to introduce or enhance critical thinking skills and inquisitiveness within our medical students. The primary goal of the SP is for the students to formulate a question related to medicine and then to use scholarly approaches to create a “deliverable” prior to graduation.

Projects can be lab-based (basic science research related to a medical condition/treatment/pre-trial, literature review), it can be clinical (survey, chart review, clinical research, literature review) or it can be education based (curriculum, assessment, knowledge gaps, literature review).

Deliverables (the final project) can be very broad in scope: a published paper, a flyer/book/handout that's shared with a specific population, a series of videos, an art-of-medicine display.

As a mentor for a SP, we ask that you meet with the student at least 1x/semester to discuss progress and to make sure the student is on the correct research trajectory. Of course, you are more than welcome to meet with your mentee more frequently, depending on the nature of the project. There are milestones that the SP Leadership committee will require, including a written literature review related to the topic of interest, bi-annual progress reports, as well as the final deliverable.

We hope that you will find the experience of working with a medical student over 4 years will be a rewarding one and the SP leadership committee will help as much as possible to decrease the workload and increase the enjoyment of participation.

If you are interested in acting as a potential mentor (a list of potential mentors and their areas of interest will be shared with the UACOMT students), please email me at kjoiner@arizona.edu with:

- Your name
- Your Terminal Degree
- Your Home Department/College
- Your Area of Interest

Faculty agreeing to serve as mentors commit to the following:

1. Agree to serve as mentor for duration of SP.
2. Assist students in preparing the written SP proposal.
3. Where appropriate, assist students in completing documents for submission to regulatory bodies.
4. Ensure students are progressing in their project. This can be accomplished in the fashion most suitable and appropriate for both mentor and student, including group research in progress meetings, individual meetings between mentor and student, or other mechanisms.
5. Identify problems in progress on the SP, such as difficulty in collecting data, and work to resolve them.
6. Report problems to SP leadership, if not resolved promptly.

STUDENT RESOURCES

To Aid with the Conduct of SP Research

Access training resources and personnel.

A comprehensive set of links for resources to assist students with conduct of their SP is listed below:

[College of Medicine Research Guide](#)

[College of Medicine Systematic Review/Scoping Review Guide](#) [Cochrane Interactive Learning](#)

[UA Campus Repository](#)

[University of Arizona Journal of Medicine](#)

[Article: Writing and Publishing](#)

Access various databases that contain interests, biographies, publications, grant funding and collaborative networks for faculty at the University of Arizona.

Students can access various databases that contain interests, biographies, publications, collaborative networks, grant funding for faculty at the University of Arizona. A new database is being generated for SP describing medical student projects, as submitted by faculty in the COM and other colleges.

The selection of a project and mentor is inherently an iterative process. No one database will provide all of the information that required to identify potential mentors and/or research projects. Nor will all the information for any given faculty member necessarily be complete. The databases will be most useful when combined with input from DT directors and faculty, SP leadership, course instructors, house deans and more.

Searchable databases include:

[University of Arizona Profiles \(profiles.arizona.edu\)](#)

This database lists all faculty at the University of Arizona, in all colleges and programs. It can be searched by keyword, including faculty member name, topic and more. Information for each faculty member includes biography, interests, courses and scholarly contributions (mainly publications). The information is downloaded from each faculty member's UA Vitae, which is updated on an annual basis.

[Knowledge Map \(KMAP.arizona.edu\)](#)

This database illustrates, using a network diagram, collaborative interactions between faculty. It can be searched by keyword. Publications and grant funding for individual faculty, and for their collaborators are listed. The top 40 outputs for the keyword entered are shown. This output is complimentary to that from the profiles.arizona.edu database (link above).

[COM Faculty Research Projects database \(Airtable\)](#)

This newly created database lists projects suitable for the SP, as submitted by faculty. This database will be constantly expanding, as more potential projects are submitted.

APPENDICES

A. Instructors and Contact Information

COURSE DIRECTOR

Keith Joiner, MD, MPH

Location: COM 2417
Phone: 520-626-3471
Mobile: 520-977-5733
Email: kjoiner@arizona.edu

ASSISTANT COURSE DIRECTORS

Zoe Cohen, PhD

Assistant Director, Medical Education
Phone: 520-621-5485
Email: zcohen@arizona.edu

Dan Combs, MD

Assistant Director, Community-Based Research
Phone: 520-626-7780
Email: comb89@arizona.edu

PROGRAM COORDINATOR

Alisa Petersen, MPA

Phone: 520-626-2689
Email: alisapetersen@arizona.edu
Location: COM 2219

MD/MPH PROGRAM DIRECTOR

Doug Campos-Outcalt, MD, MPA

Location: Phoenix, College of Public Health
Email: dougco@arizona.edu

DISTINCTION TRACK DIRECTORS

BILINGUAL MEDICAL SPANISH

Director: **Alejandra Zapien Hidalgo, MD**
Email: azapien8@arizona.edu

GLOBAL HEALTH

Directors: **Jerome Koleski, MD & Sommer Aldulami, MD**
Coordinator: Diane Poskus
Email: dposkus@email.arizona.edu

INTEGRATIVE MEDICINE

Director: **Randy Horwitz, MD, PhD**
Coordinator: **Jackie Gomez**
Email: azcim-imdt@list.arizona.edu

LEADERSHIP AND INNOVATION

Directors: **Mindy Fain, MD & Serena Scott, MD**
Coordinator: **Travis Garner**
Email: travisgarner@arizona.edu

MEDICAL EDUCATION

Zoe Cohen, PhD

Coordinator: **Travis Garner**
Email: travisgarner@arizona.edu

RESEARCH

Director: **Marlys Witte, MD**
Manager: **Grace Wagner**
Coordinator: **Graceann Thompson**
Email: grace@surgery.arizona.edu

RURAL HEALTH PROFESSIONS

Director: **Anna Landau, MD**
Coordinator: **Hildi Williams**
Email: hildi@email.arizona.edu

B. Scholarly Project Proposal Form

Scholarly Project Proposal Form

The table below lists the required elements for submission of your scholarly project proposal.

You will work with your mentor in preparation of this material. The total length should not exceed 3 pages but can be shorter. This form is for tracking purposes and awarding SP credit. You will be given opportunities to update your SP plan as needed, so don't be concerned that you are locked into what you write here. **At the outset, you may be unsure how to answer some of the questions, in which case you may leave them blank.**

Student	Last, First Name	Expected year of graduation
Mentor	Last, First Name	Department, College
Affirmation	[] By checking here, I (the mentee) indicate that I have discussed the mentor agreement with my mentor and we have agreed to work together.	
Distinction Track	Indicate the Distinction Track, if any	
Title	Title of your SP	
Abstract	Provide a brief description of the research topic 100 words Maximum	
Personal Perspective	Briefly explain why you have chosen your SP topic, from both a scholarly and personal point of view. How does this fit with your experience, priorities and career goals? How will you use the SP to differentiate yourself? Maximum ½ page	
Background and Significance	Succinctly describe the background for your SP, by summarizing the existing literature and knowledge base. Explain why your question is important and how the knowledge you obtain builds on prior studies to generate new knowledge. Maximum ½ page	
Approach	Briefly outline and describe the sequence of activities and methods you will use to complete your SP. This includes, but is not limited to, how you will collect and analyze data, if applicable. Maximum 1 page.	
Roles and Responsibilities	Briefly describe the expected contributions essential to SP completion of individuals involved in your project, including yourself, your mentor, and, if applicable, other members of the mentor's team. Maximum ½ page	
Coursework	Describe courses or educational processes (meetings, simulations, other) that you may take to expand your knowledge base on the topic or methods required to complete your SP.	
Ethical/Regulatory Approval	Please state if your SP requires IRB review and/or approval and, if so, the status (approved, submitted, in development).	
References	List references that provide background for your project. Only include those that you have read, and are cited in your background and significance or approach sections. Maximum of 10 references	
Budget	Include an estimate of any anticipated expenses associated with your project.	
Supervisory Approvals	Your proposal needs to be reviewed and approved by your mentor prior to submission. Please indicate when you obtained this approval from your mentor.	

C. Scholarly Project Progress Report

SP Progress Report Form

Student ID	Student Name
Title of Scholarly Project:	
Mentor Name and Department:	
Summary of progress on SP (Provide brief summary of progress since last report)	
Problems/Limitations (Describe problems -actual or potential - with conducting the SP as planned in the time frame allotted)	
Changes in Scope/Scale (Describe any substantial changes to the SP in comparison to the initial plan)	
Other Comments	
Approvals	Mentor []

D. Frequently Asked Questions

Can I do an MBA or MPH and get credit for SP?

Yes. As below.

The internship for the MPH can be structured to fulfill the requirement for the SP. The specifics will require discussion with Dr. Gerald, Director of MD/MPH program in the COPH, in conjunction with SP leadership.

The MD/MBA program has multiple options for students to fulfill the SP requirement as part of the MBA curriculum. These include business consulting projects with health care companies, generation of mock strategic/business plans for health care entities, expansion of research projects required in several health care-related courses and more. The specifics will require discussion with individual faculty in the Eller College of Management, in conjunction with SP leadership.

Can I conduct my SP research by working with a mentor at another institution during the SP summer?

Yes. You are required, for administrative purposes, to also have a co-mentor who is a UA faculty member, but this individual need not be part of the research project. In continuing your SP research during MED820C through MED820H, this latter individual will sign off on your progress report form.

How does the Scholarly Project differ for MD/PhD students?

MD/PhD students have a different timeline for identifying a mentor and their PhD thesis topic. The latter fulfills the student's SP research requirement. If students withdraw from the PhD component to pursue the MD degree only, the requirements for submitting a final deliverable will be the same as for all other MD students.

MD/PhD Students are still required to fulfill all of the first-year requirements. This includes:

- 1) The first-year didactic sessions
- 2) Completing the CITI training requirements
- 3) Meeting with a member of the Scholarly Project Leadership

For MED820C, MD/PhD students are required to complete the eLearning module on responsible literature searching.

How do Distinction Tracks intersect with the Scholarly Project?

The Scholarly Project may align with a Distinction Track, but it does not need to. With approval from SP Leadership and the Distinction Track Director, the capstone project for the following DTs can also satisfy SP requirements:

- 1) Medical Education
- 2) Research
- 3) Global Health

If a student plans to submit their plan to MSRP, do they still need to meet with SP Leadership?

Yes, all students are required to complete this meeting within their first year.

If a student has conducted research in some capacity, can they work on the same topic for their Scholarly Project?

The general answer is yes, as long as the research has some relationship to medicine. The initial meeting students have with SP Leadership is meant to clarify their research interests.

What is the relationship between a PMAP project, a master's thesis and the scholarly project requirement?

Students doing research in the PMAP program can continue that research for their SP. This will require expanding and/or modifying that research to a scope appropriate for the 4th year SP.

Completion of the SP, and preparing a final deliverable in the format of a Master's thesis, will constitute completion of the thesis requirement.

For students opting for a SP topic completely distinct from their PMAP research, discussion with the PMAP program will be required to determine eligibility for Masters thesis credit.

E. Required CITI Training Modules

Source: This project will guide you through the process of becoming a certified human subjects researcher at the University of Arizona – meaning that you have completed a series of online courses required of all investigators at the University. This training is conducted by a third party known as CITI: the Collaborative Institutional Training Initiative. To complete this project, please go through the following steps:

1. Go to the CITI website: www.citiprogram.org.
2. Register as an affiliate of the University of Arizona.
3. Select the “Human Subjects” and “Responsible Conduct of Research” categories, and enroll in the “Biomedical Research BASIC course”, the “Native American Course”, and the “Social & Behavioral Research BASIC course”. You will also need to enroll in “Responsible Conduct of Research (RCR)- Basic”.
4. This should automatically add a series of standard modules that are required by the University of Arizona.
5. Complete the online modules and take the quizzes outlined below!
6. Once you have completed the course with a passing grade, you will receive a digital completion certificate. After you have completed all required trainings (detailed below), merge certificates into one document, and upload it to this assignment in MedLearn.

If you have already completed the CITI human subjects training within the last three years, then you may take the refresher course rather than the full course. If it has been longer than three years, then you will need to redo the entire training.

Courses

Biomedical Research Investigators

History and Ethics of Human Subjects Research
FDA-Regulated Research

Native American Research

UA - Native American Module
Case Study 1
Case Study 2
Case Study 3

Responsible Conduct of Research (RCR) Basic

Authorship
Collaborative Research
Conflicts of Interest
Data Management
Mentoring
Peer Review
Plagiarism
Reproducibility of Research Results
Research Involving Human Subjects
Research Misconduct
Using Animal Subjects in Research

F. Scholarly Project Didactic Sessions

Date	Learning Event	Learning Objectives
Orientation	What is Scholarship?	<ol style="list-style-type: none">1. Describe what constitutes scholarship and what makes a scholar.2. Explain what constitutes education scholarship.3. Explain what constitutes clinical scholarship.4. Explain what constitutes basic research scholarship.
MS1-Fall	How to Conduct Research as a Medical Student	<ol style="list-style-type: none">1. Implement strategies to identify a research mentor.2. Recognize common barriers to research progress.3. Appraise available research opportunities for feasibility and likelihood of success.4. Develop appropriate research questions for a medical student project.
MS1-Fall	Regulatory Bodies, Research and You	<ol style="list-style-type: none">1. Describe the function of the FDA.2. Describe the role of Institutional Review Boards.3. Develop a mock IRB submission.4. Describe options for research oversight such as data safety monitoring boards.5. Appraise sample clinical trial data in relationship to DSMB monitoring rules.
MS1-Fall	Using Surveys for Research	<ol style="list-style-type: none">1. Recognize biased and leading questions.2. Understand types of questions within Qualtrics.3. Write appropriate survey questions.4. Design a survey within Qualtrics.
MS1-Spring	Case Reports and Literature Reviews	<ol style="list-style-type: none">1. Determine if a case may be reportable.2. Identify potential areas of existing literature that would be appropriate for a systematic review.3. Implement the PRISMA checklist as appropriate to conduct a quality systematic review.
MS1-Spring	Research in Underserved Communities	<ol style="list-style-type: none">1. Recognize causes of decreased research participation in underserved communities.2. Implement strategies to improve research participation in underserved populations.3. Recognize barriers to development of researchers from underserved communities.4. Describe available strategies to enhance development of researchers from underserved communities.