

CAPSTONE SCHOLARSHIP AND DISCOVERY COURSE SUMMARY

WHAT IS CAPSTONE?

The Capstone Scholarly Project (CSP) is a mentored, longitudinal project based on each student's personal passion. The project must be related to medicine, and meet at least one of the six [UMMS core competencies](#). Projects may range from bench or clinical research, to community service, to the humanities. Students will be the primary drivers of projects, with LC mentors (for the first 18 months) and then Project Advisors (through completion) providing knowledge, skills and experience to support students in the design, execution, writing and presentation of their work. Students submit periodic reports on their projects to help guide and verify their efforts. Credit for the CSP is granted based on the Project Report and the formal presentation with reflection in the spring of their AS year. The Capstone course is *required* for graduation; grading is Credit/No Credit.

This document is designed to consolidate course information and its key points. More complete, detailed information is available in the [Capstone Course manual](#).

OVERVIEW

- **The Capstone Scholarship and Discovery Course (CSD) Leadership:** Melissa Fischer, MD, MEd, Course Co-Leader; Rachel Gerstein, PhD, Course Co-Leader; and Program Manager, Colleen Burnham, MBA
The Capstone Faculty Committee (CFC): faculty members from varied departments and student representatives
- **Students are the primary drivers** of their project and work, initially utilizing LC Mentors and then Advisors for assistance in finding resources, time management, right-sizing their projects, and reviewing and providing feedback on all written materials
- **Timeline plan:** It is strongly recommended that students develop a timeline for the entire Capstone Project no later than at the time of submitting the Capstone Proposal, when the Project and design is determined
- **Project scope:** Capstone projects should be manageable over 3 years. Larger projects should be considered for the Senior Scholars Program
- **Various steps in Project development and related reports** begin in the first year and culminate in completion in mid-spring of the 4th year. The longitudinal design of the course requires some form of Capstone effort across all 4 years. That effort may range from literature review, to discussions with experts in their topic area, to major project work, to writing about the Project
- **Report Review:** FOM1 and Fall FOM2 reports are reviewed by LC Mentors; thereafter by Advisors. All reports should be reviewed *before* submission. For each report, a **WORKSHEET** including explanations, rubric, and resource links, is provided to use as a draft for review by LC Mentors and Advisors; the **SUBMISSION** version is used to "turn in" the requested information – both forms are available via BBL
- **Change of Topic:** Students are encouraged to carefully consider before doing so. If they determine to change topics altogether, or are planning to substantially **change existing project design or methodology**, changes may be made until January of the CCE year using the Change of Project/Change of Design Request form available via BBL. A **Change of Advisor** form must be submitted for any changes in advising
- **Group Projects:** Students may work in groups to a maximum of 3 students. Each student is responsible for a particular piece of the Project. Student groups may work with one or more Project Advisors
- **Capstone if in other programs:** Students must fulfill Capstone requirements and timelines until entering other programs such as Senior Scholars, CTRP or the PhD portion of the MD/PhD

Steps and Reports

1st year (FOM1)

- Topic consideration
- Spring Progress Report, potential topics

2nd year (FOM2)

- Fall Progress Report, Selection of Topic
- Fall Advisor Selection – students select an advisor specific to their topic, who will provide guidance until completion of the Capstone Scholarly Project (CSP)

- Spring Capstone Project Proposal -- detailed description of the Project, including: Goals/Objectives, Methods, Expected Results and Anticipated Deliverables

3rd Year (CCE)

- Fall Progress Report, with Introduction Section
- Spring Progress Report, with Methods Section

4th Year (AS)

- AS Capstone Month (May – January)
- AS August Progress Report, with Results Section (only if taking elective from October-January)
- AS final Project Report - due last day of AS Capstone month (*note*: Class of 2016 has extended due dates)
 - 5-10 page scholarly paper, including: Goals/objectives, Methods, Results, Conclusions and Discussion
- Deliverables – due last day of AS Capstone month
 - Any work integral to the actual Project such as research protocols, surveys, educational pamphlets, or any presentation(s) done in addition to the final Capstone presentation
- AS Capstone Presentation
- Guided Reflection paper – due at the time of Capstone Presentation
- If needed, remediation will occur up to April 30th

All reports throughout the 4 years are submitted to CSD and reviewed by CSD leadership; the CFC reviews Project Proposals and Project Reports as well as any particularly concerning reports. Reports are reviewed to ensure students are successful in their work and meeting Capstone requirements

Project Work time (Examples of when project work may be done)

- **FOM1** (1st year): unscheduled time, the summer between FOM1 and FOM2 year, interest group participation, optional enrichment elective or learning communities activities, new or ongoing research, international experiences or volunteer time
- **FOM2** (2nd year): Population Health Clerkship, and other opportunities as above
- **CCE** (3rd year): self-designed Flexible Clinical Experience (FCE), existing FCE or opportunities as above
- **AS** (4th year): related electives, Capstone month (scheduled May – January) is dedicated time intended for report writing and compiling the final presentation

Project Types and Development

Student A: clinical focus

- Worked in a community health clinic between college and medical school
- Identifies a patient to follow longitudinally (COPD, diabetic pregnant mother who delivers...) during the two years with Longitudinal Preceptor Program (LPP) at a community health center
- Completes an FCE in a related clinical field as part of the CCE year
- Writes a detailed **case report**, including **literature search** related to this patient and **presents** it as the CSP

Student B: research, patient education focus

- Enters medical school directly from college
- Works in genetics lab summer between FOM1 and FOM2 as part of summer research program developing genetic test X
- Completes FCE working with genetic counselors as part of the CCE year
- Writes **informational flier** about genetic test X, receives feedback as the result of a **pilot** with pediatric patients/families, **edits** and **writes up** process and findings as CSP

Student C: community service focus

- Joins the Community Assistantship program in the summer between FOM1 and FOM2 working with a group that focuses on refugee help
- Continues this effort with the 'refugee health' group for the Population Health Clerkship in the FOM2 year
- Develops mentoring program for immigrant children implemented during occasional volunteer days in CCE year
- Researches background data on this population and **writes about mentoring program** as CSP; engages junior students to adopt elements as a future Capstone legacy project

Student D: humanities focus

- Flutist in college, plays in Seven Hills Symphony
- Completes FCE in the CCE year with palliative care team; **surveys** patients on hospital environment and well-being
- Plays flute on hem-onc floor and **surveys** new set of patients on effects of the music on their sense of well-being
- Completes **poster** on music in medicine and presents **data** collected as CSP
- Shares idea with another Seven Hills member who decides to pick this up for their Capstone as a legacy project

Student E: bench research focus

- Interested in basic science research but has no experience from college
- Completes summer research project in UMMS laboratory
- Discusses with lab mentor and is connected with a PhD student in the lab to help identify focused lab project, including background reading
- Completes clinical or research FCE related to summer research
- **Writes up** background, **analyzes data** and creates scientific **poster** as CSP

Advisors

- Students engage a Project Advisor in the fall of the FOM2 year. Advisors replace Mentors in the role of providing Capstone oversight for the students. Advisors may be from any professional discipline and do not need to be UMMS faculty or located at UMass. Residents or Fellows may serve as advisors with the consent of their supervising program director if they are expected to remain in that program through the duration of the student's Capstone work.
- It is recommended that Advisors accept only one student, or one student group, from each class year. Advisors may submit the Advisor Exception Request to the CSD leadership if interested in taking on additional students.

RESEARCH

IRB & IACUC

- All Capstone projects that incorporate the use of subjects (human or animal) must have appropriate Advisor oversight.
- For human subjects: information regarding IRB is available on the IRB website and in the CSD Manual, FAQs & Resources section in BBL which contains a decision algorithm regarding need for IRB review
- For animal subjects: IACUC information and process is available on the UMMS IACUC website

Students as Research Subjects (SAS)

- Projects that incorporate UMMS students in educational research or surveys will be submitted by CSD to the UMMS Students as Research Subjects (SAS) Committee for approval; this does not replace UMMS IRB review.

RESOURCES

- Capstone Manual
- Blackboard-LEARN (BBL)
- links and video instruction
- Mentors and Advisors
- House Librarians and the Library website
- Forum-style information sessions
- CFC members and CSD leaders assist students with:
 - general information about Capstone and its requirements
 - selecting topics
 - finding advisors
 - writing and presentation skills

Please contact us at any time: CSD@umassmed.edu