MCB Curriculum 2023-2024

General Methods/Professional Development (GM/PD) Courses

Please check the University of Washington Time Schedule for the most updated course information.

The following courses are highly recommended for MCB students to take to further develop their professional skills.

GENERAL METHODS/PROFESSIONAL DEVELOPMENT (GM/PD) COURSES

GM/PD Course One:

Course Number: CENV 500
Course Title: Communicating Science to the Public Effectively
Instructor(s): TBD
Location: UW
Credits: 3.0
Quarter, Weeks, and Frequency course is offered: Winter, *will be offered in Winter 2024*
Attributes: Career development and methods
Sub Area (if applicable):
Synopsis: Whether you're looking to give an unforgettable job talk, change a policymaker's mind, or finally get your family to understand your research, the Engage course is a great professional development opportunity and learning experience. This is a discussion-based course for graduate students in the sciences that focuses on effective techniques for communicating science, with an emphasis on sharing your science with non-specialists. At the end of the quarter, each student will present a 20 minute public talk on their graduate research to be delivered during the 2024 Engage: The Science Speaker Series at Town Hall Seattle. In this course, students will:

- Develop and practice analogies to distill their research
- Perfect their elevator pitches
- Practice storytelling, audience consideration, and cultural competency
- Play improv games to leverage improvisation as a public speaking tool
- Engage in weekly readings and discussions
- Hear from guest speakers on science communication

Note: Space is limited in this course and it often fills quickly, with an extensive waitlist. An application process and expectation agreement must be completed by the student to be considered for the course. Please reach out to the instructor for more information.

GM/PD Course Two:

Course Number: MCB 512
Course Title: Scientific Speaking Seminar
Instructor(s): Jihong Bai
Location: FH
Credits: 1.5
Quarter, Weeks, and Frequency course is offered: *Winter, weeks 1-5, odd years, will be offered in Winter 2025*

Attributes: Career development and methods
Sub Area (if applicable):
Synopsis: A crucial part of a scientific career is the ability to effectively deliver a research seminar. This course will focus on all aspects of giving a seminar and teach students how to introduce the research topic, how to make clear and effective slides, and how to explain methods and data in a clear manner. Students will prepare their own research seminar throughout the course. Each week they will practice a part of it and receive feedback from other students and the instructors. By the end of the course, students will have an entire seminar about their thesis project prepared. The course will also give examples of good and bad seminars and help students learn how to communicate with non-scientists about their research.

GM/PD Course Three:

Course Number: MCB 543
Course Title: Logic Constructs and Methodologies of Biological Research
Instructor(s): Sandra Bajjalieh
Location: UW
Credits: 3.0
Quarter, Weeks, and Frequency course is offered: Spring, weeks 1-10, *will be offered in Spring 2024*
Attributes: Career development and methods
Sub Area (if applicable):
Synopsis: This course surveys the logic and methods of scientific practice from historical, practical, and sociological points of view. Topics covered include how the philosophy of science influences experimental approaches, how the demarcation between science and pseudoscience has evolved, how common cognitive biases lead to errors in judgement and interpretation, and how sociological factors impact scientific progress. After completing the course, students should understand and interface differently with science they encounter, papers they read, and their own projects.

GM/PD Course Four:

Course Number: MCB 560
Course Title: MCB Biotechnology Externship
Instructor(s): Celeste Berg
Location: TBA
Credits: 2.0
Quarter, Weeks, and Frequency course is offered: Summer, weeks 1-10
Attributes: Career development and methods
Sub Area (if applicable):
Synopsis: This externship program provides MCB students with the opportunity to gain firsthand research experience in biotechnology companies in the Puget Sound area. Applications are available in the early spring and reviewed by the Externship Program Director. Applications are submitted to participating companies to find a suitable match. This externship is only available during the summer between Year 1 and Year 2 to students who have completed 3 rotations and identified a dissertation laboratory. Students are supported by MCB for the summer quarter.

GM/PD Course Five:

Course Number: PBIO 519
Course Title: Membrane and Muscle Biophysics Seminar

Instructor (s): Oscar Vivas
Location: UW
Credits: 1.0
Quarter, Weeks, and Frequency course is offered: Spring, weeks 1-10
Attributes: Career development and methods, seminar
Sub Area (if applicable):
Synopsis: This course will allow graduate students to learn presentation tools to improve their skills. Students will attend scientific seminars given by Postdoctoral Fellows from the Departments of Physiology and Biophysics and Pharmacology, presenting their current research on cell membrane function, cell physiology, and muscle contraction. A discussion session will follow each seminar with emphasis on two aspects; the first will be a scientific discussion to identify the scientific question, experimental approaches, and conclusions of the research; the second will focus on the presentation techniques. Credit/no-credit only.
Prerequisite(s): Permission of instructor.

GM/PD Course Six:

Course Number: UCONJ 510
Course Title: Introductory Laboratory Based Biostatistics
Instructor (s): Lloyd Mancl
Location: UW
Credits: 2.0
Quarter, Weeks, and Frequency course is offered: Summer, A-Term only
Attributes: Lecture-based with assignments
Sub Area (if applicable):
Synopsis: Introduces methods of data description and statistical inference for experiments. Covers principles of design and analysis of experiments; descriptive statistics; comparison of group means and proportions; linear regression; and correlation. Emphasizes examples from laboratory-based biomedical sciences, and provides demonstrations using standard statistical programs.

The following two courses are only available to students who have already passed their General Exam.

GM/PD Course Seven:

Course Number: MCB 508
Course Title: MCB Science Teaching
Instructor(s): Becca Price
Location: UW
Credits: 2.0
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 1-10
Attributes: Career development and methods
Sub Area (if applicable):
Synopsis: Covers the theory and methods of high-level student-centered instruction for diverse college students. Covers active learning and mentored teaching, evaluation design and implementation, fostering of instructor-student relationships, course design and foundational principles of the learning sciences. Students will later apply this material as an Instructor of Record of their own course in an undergraduate department at UW. Credit/no-credit only.

Note: Students submit an application in the spring of their third year to be admitted to the course in fall of their fourth year.

GM/PD Course Eight:

Course Number: MCB 509
Course Title: MCB Science Teaching
Instructor(s): Becca Price
Location: UW
Credits: 2.0
Quarter, Weeks, and Frequency course is offered: Winter or Spring, weeks 1-10
Attributes: Career development and methods
Sub Area (if applicable):
Synopsis: Practical opportunity for students interested in high-level teaching methods for diverse populations of students. Students will apply teaching skills as Instructor of Record of their own course in an undergraduate department at UW. Credit/no-credit only.
Prerequisite(s): MCB 508.
Note: Students submit an application in the spring of their third year, take the theory and methods course (MCB 508) in fall of their fourth year, and then co-teach a course either winter or spring of their fourth year.

Working with Datasets

As a graduate student, you will likely encounter and work with a large dataset. Classes that include computational work, such MCB 536 (Tools for Computational Biology) for example, may be of interest to students. We encourage you to review the foundational and elective courses under the Computational Biology Area of Interest Suggested Curriculum for more computational course suggestions.