



College of Medicine
University of Cincinnati

GRANT WRITING IN BIOMEDICAL SCIENCES 23FS

Course MCP8001 (2 Graduate Credits)

Wednesday 2:00-3:55pm
MSB3351

COURSE DIRECTORS:

Yvonne Ulrich-Lai, Ph.D.
558-6118

A-135, Reading Campus
ulrichym@ucmail.uc.edu

Christina Gross, Ph.D.
636-3493

R2407, CCHMC
Christina.Gross@cchmc.org

Meeting schedules and formats for each Section will be communicated by the respective Section Leaders.

COURSE DESCRIPTION

The objective of this course is to provide training in the development of a research proposal and in effective grant writing. The students will learn how to identify a significant research question, develop a hypothesis, and design appropriate experiments to test the hypothesis. A major part of the class is writing the Specific Aims and Research Plan of an NIH-style F31 proposal. Depending on your PhD program, your proposal will be based on a paper assigned to you by your mentor or on your actual thesis project. The course also informs about the NIH application and review process, and students will participate in a mock study section, in which they will critique each other's grant proposals. This course helps to prepare you for your qualifying exam. It is recommended that students also participate in the "Career Opportunities in Biomedical Sciences (GNTD8003)" course and/or "Academic Survival Skills" (NS7077).

The successful student will be able to:

- Write an NIH-style F31 grant proposal, review a proposal, and present the critiques in a mock study section
- Acquire an understanding of how to write other sections of the NIH grant application including NIH Biosketch, Vertebrate Animals, Human Subjects, Budget, Environment and Facilities etc.

COURSE ORGANIZATION AND LOGISTICS

Students will be divided into one of three different Sections based on their graduate program. General course instruction (e.g., common lectures and outside speakers) will be provided by the Course Directors to all students regardless of Section. Common lectures will be presented in person in MSB3351 from 2-2:55 pm. Students are expected to attend each of these classes and be prepared to participate in discussions. During some weeks, outside speakers will be invited.

In addition, each Section will meet on Wednesdays from 3-3:55 pm following the main class; the Sections will be led by faculty members provided by each participating graduate program (see below). The Sections provide the opportunity for greater individualized instruction that is tailored to the needs of each student and each graduate program.

Important Due Dates:

- 9/6/23 before 11:59 pm:** Hypothesis assignment due
9/20/23 before 11:59 pm: Specific Aims assignment due
9/27/23 before 11:59 pm: Revised Hypothesis assignment due
10/4/23: optional progress check-in: Significance section
10/11/23 before 11:59 pm: Revised Specific Aims assignment due
10/11/23: optional progress check-in: Innovation section
10/25/23 before 11:59 pm: Grant Proposal due (1 page Specific Aims + 6 pages Proposal)
11/1/23 before 2 pm: Written grant reviews due
11/17/23 before 11:59 pm: Revised Grant Proposal due*

*revised Grant Proposal is due 2 weeks after receipt of your summary statement

DATE 2023	DAY	TIME	Core Lectures ONLINE	Professor
8/23	W	2-3:55pm	<p>Introduction of Course Directors Introductory Lecture</p> <ul style="list-style-type: none"> • Course overview, expectations, and important deadlines • Tools for scientific writing and literature search <p>3 pm: course sections meet separately</p>	Ulrich-Lai
8/30	W	2-3:55pm	<p>Hypothesis Development and Testing</p> <ul style="list-style-type: none"> • Developing testable hypotheses • Strategies for literature search • Distribution of writing assignment <p>3 pm: course sections meet separately</p>	Gross
9/6	W	2-3:55pm	<p>Proposal formats</p> <ul style="list-style-type: none"> • Defining each section of the grant application • Reviewer criteria • Hypothesis Development and Testing assignment is due before 11:59 pm <p>3 pm: course sections meet separately</p>	Ulrich-Lai
9/13	W	2-3:55pm	<p>Specific Aims</p> <ul style="list-style-type: none"> ✓ Hypothesis assignment is graded and returned <p>3 pm: course sections meet separately</p>	Gross
9/20	W	2-3:00pm	<p>Significance and Innovation</p> <ul style="list-style-type: none"> ✓ Specific Aims assignment is due before 11:59 pm <p>3 pm: course sections meet separately</p>	Gross
9/27	W	2-3:55pm	<p>Approach - Research Design</p> <ul style="list-style-type: none"> • Designing the appropriate experiments to directly test your hypothesis • Scientific Rigor • Statistical Analysis ✓ Revised Hypothesis assignment is due before 11:59 pm ✓ Specific Aims assignment is graded and returned <p>3 pm: course sections meet separately</p>	Ulrich-Lai
10/4	W	2-3:55pm	<p>1) How to respond to reviewers' critiques 2) How to write effective reviews</p> <ul style="list-style-type: none"> ✓ Revised Hypothesis assignment is graded and returned ✓ Progress check-in Significance section (1 bonus point, see below for details) <p>3 pm: course sections meet separately</p>	Gross
10/11	W	2-3:55pm	<p>Discussion and tips from graduate students who have applied for F31 grants</p> <ul style="list-style-type: none"> • What other documents are needed? • Writing Schedule <p>Distribution of 2 successful F31 proposals for discussion next week</p> <ul style="list-style-type: none"> ✓ Revised Specific Aims assignment is due before 11:59 pm 	Judy Yoo, Austin Drake, Andrew Gaulden

			<p>✓ Progress check-in Innovation section (1 bonus points, see below for details)</p> <p>3 pm: course sections meet separately</p>	
10/18	W	2-3:55pm	<p>Information about F31 review process</p> <ul style="list-style-type: none"> - Distribution of 2 successful F31 proposals for discussion next week <p>✓ Revised Specific Aims assignment is graded and returned</p> <p>3 pm: course sections meet separately</p>	Jankowski
10/25	W	2-3:55pm	<p>Faculty demonstration of F31 grant review (2-3:55pm, no separate section meetings)</p> <ul style="list-style-type: none"> ✓ F31 Proposal assignment is due before 11:59 pm ✓ By the end of the week, each student will receive the grant of another student to present and review at mock study section 	Davidson, Wohleb
11/1	W	2-3:55pm	<p>Mock study section (<i>separated by Section</i>)</p> <ul style="list-style-type: none"> ✓ Written grant reviews are due at 2pm (before class starts) for all grants being discussed in today's mock study sections. <p>Section Leads will prepare a Summary Statement for each student whose grant was discussed today and will provide these to the students by this Friday.</p>	Students and Faculty
11/8	W	2-3:55pm	<p>Mock study section (<i>separated by Section</i>)</p> <ul style="list-style-type: none"> ✓ Written grant reviews are due at 2pm (before class starts) for all grants being discussed in today's mock study sections. <p>Section Leads will prepare a Summary Statement for each student whose grant was discussed today and will provide these to the students by this Friday.</p>	Students and Faculty
11/15	W	2-3:55pm	<p>Mock study section (<i>separated by Section</i>)</p> <ul style="list-style-type: none"> ✓ Written grant reviews are due at 2pm (before class starts) for all grants being discussed in today's mock study sections. <p>Section Leads will prepare a Summary Statement for each student whose grant was discussed today and will provide these to the students by this Friday.</p>	Students and Faculty
11/22	W	2-3:55pm	<p>The NIH Biosketch Summary and Narrative</p> <p>Other important sections of a (F31) proposal</p> <ul style="list-style-type: none"> • Vertebrate Animals • Human Subjects • Environment and Facilities • Personal Statements <p>3 pm: course sections meet separately</p>	Ulrich-Lai
11/29	W	2-3:55pm	<p>Writing in non-academic careers</p> <p>3 pm: course sections meet separately</p> <ul style="list-style-type: none"> ✓ Revised F31 Proposals are due before 11:59 pm, 14 days after you receive your Summary Statement from mock study section. 	Invited representatives

Grading: Letter grade
Prerequisite: None

GRADING POLICY:

The Course Directors provide the same writing assignments to all students regardless of Section. These assignments are graded by the respective Section Leader(s) using a common grading rubric provided by the Course Directors; this includes providing specific feedback to the students for potential revision of the assignment. If students choose, they may revise any assignment in an attempt to improve their grade; each assignment can only be revised one time and must be submitted by the due dates indicated on the course schedule. If an assignment is revised, then the final grade for that assignment will be the weighted average of the grades received on the initial submission (35%) and revised submission (65%).

The final letter grade will be awarded based on the following weighting and table.

Hypothesis Development and Testing – 15

Specific Aims – 25

Proposal – 50 (2 bonus points are available if drafts for Significance and Innovation sections are presented to your Section Leaders before 11:59pm on 10/4/23 and 10/11/23, respectively)

Class Participation and Grant Review – 10

Percentage	Letter Grade Awarded
89.50% to 100	A
84.5% to 89.499%	A ⁻
81.5% to 84.499%	B ⁺
76.5% to 81.499%	B
73.5% to 76.499%	B ⁻
69.5% to 73.499%	C ⁺
66.5% to 69.499%	C
Below 66.5%	F

Late Work

Late work: It is expected that assignments will be submitted on time unless the student has been given an extension. Assignment deadlines are listed on the class schedule. Please communicate with your Section Leader(s) if you are unable to turn in assignments at the appointed time. It is imperative that you communicate with your Section Leader(s) as soon as possible. If assignments are turned in late and the student has not been given an extension, points will be subtracted as follows:

Late 24 hours or less: 10% of the points received for this assignment will be subtracted.

Late 24-72 hours: 20% of the points received for this assignment will be subtracted.

Any assignments received more than 3 days (72 hours) after the submission deadline will not be accepted and the assignment will be counted as "0" points.

Section Leaders:

To facilitate discussion and ensure individualized, graduate program-specific teaching for all students, the class will be split into three Sections. For each Section, Section Leaders will 1) determine the format and route of instruction for their section meetings, 2) communicate section-specific information to their students, 3) grade each assignment and provide feedback to students, and 4) lead the mock study section(s) for their Section, including preparing Summary Statements for each student. The three Sections and their respective Section Leaders are listed below:

Section 1

Systems Biology & Physiology,

Yvonne Ulrich-Lai, PhD (ulrichym@ucmail.uc.edu)

Molecular, Cellular & Biochemical Pharmacology,
Neuroscience:

Jo El Schultz, PhD (schuljo@ucmail.uc.edu)
Christina Gross, PhD (christina.gross@cchmc.org)

Section 2

Molecular Genetics, Biochemistry & Microbiology:

Agnes Luo, PhD (luoy2@ucmail.uc.edu)
Rhett Kovall, PhD (rhett.kovall@uc.edu)

Section 3

Pathobiology & Molecular Medicine:

Phillip Owens, PhD (phillip.owens@uc.edu)
Danielle Tapp, PhD (tappde@ucmail.uc.edu)

CLASSROOM PROCEDURES/POLICIES

Communication

All class communication will take place through Canvas or UC email. It is imperative that you check your email on a daily basis. Any important announcements will be communicated at least 12 hours in advance of the course start time.

Technology use during/for class

This course requires a laptop with word processing software and internet access.

Attendance Policy

Attendance is mandatory, including during the online sessions for the common lectures, the common outside speaker presentations, and the Section discussion sessions. Participation includes attending virtual and in-person lectures, preparing reading and writing assignments, and **asking questions** during class. Questions are always welcomed.

If you are unable to participate in a live online activity due to internet connectivity issues, please notify the Course Directors (for common lectures) and/or Section Leaders (for Section discussions) as soon as possible.

From UC Faculty Senate

Students at the University of Cincinnati are expected to attend classes in order to meet the learning objectives for the course. Students are expected to follow the class attendance policy as outlined by the course directors. Students participating in official University sponsored activities, where the student is representing the University, will meet with the course directors to discuss any absences due to university-sponsored activities. When such absences occur, students need to provide documentation of the event(s), and work with the course directors to develop a written plan for completion of missed assignments or other course requirements with as much advance notice as possible. Any absence due to official University business may still count against the total number of allowable absences.

Faculty attendance

If an emergency occurs and the course director/faculty member does not arrive or notify the class of a cancellation, please allow 15/20/30 minutes (for a 50/90/120-minute class) before leaving the classroom.

Class Cancellation Policy

In the rare case that a class must be cancelled, faculty will email the students. Faculty will attempt to communicate class cancellations with as much advance notice as possible. Students should be sure that their UC email account is current and valid to ensure emails are received.

If the University closes due to inclement weather or other emergency situations, there will be an announcement posted on University website and if possible, on the local news channels (TV and radio). Communications related to University closures will also be sent to the student's cell phone number on record through the automatic University emergency text messaging system. Students should notify the University if they change their cell phone number to ensure they will receive these important emergency communications.

MCBP Graduate courses will follow UC West (“Main”) Campus policies for cancellation of classes due to inclement weather and other University-wide events resulting in University closures, delayed openings, or University-wide cancellation of classes. Thus, if a UC closure or delayed opening is declared, all classes administered by the Graduate Programs in Molecular, Cellular and Biochemical Pharmacology will be delayed or cancelled in accordance with the UC announcement, including course examinations, despite the fact that officially, the UC Medical Campus never closes. This “never closed” policy for the UC Medical Campus applies to all clinical activities at the COM, but does not apply to non-clinical educational activities (i.e., not involving patients or clinical care) in the COM. Disclaimer – This policy does not supersede or contradict any UC University or COM policies – it exists to make cancellation of classes due to inclement weather and other similar circumstances clear to the students taking, and the faculty teaching, in MCBP courses.

If classes are cancelled due to an emergency situations, please refer to Canvas for any posted assignments.

Academic Integrity

Academic dishonesty in any form is a serious offense and cannot be tolerated in an academic community. Dishonesty in any form, including cheating, plagiarism, and fabrication of research data or theft of ideas or information from others may result in a failing grade in a course and/or immediate suspension or dismissal from the Graduate Program. Information on "Misconduct Review Procedures" is available: http://www.uc.edu/conduct/Code_of_Conduct.html. Any work turned in by a student is subject to computerized checks for plagiarism (e.g. SafeAssign or Turnitin).

From UC Faculty Senate

The University Rules, including the Student Code of Conduct, and other documented policies of the department, college, and university related to academic integrity will be enforced. Any violation of these regulations, including acts of plagiarism or cheating, will be dealt with on an individual basis according to the severity of the misconduct.

Ethical Conduct

Each student is required to read and understand the content and implications contained in “On Being a Scientist” (available online at: http://www.nap.edu/catalog.php?record_id=12192) and the “University of Cincinnati’s Student Code of Conduct” (available online at: www.uc.edu/conduct/Code_of_Conduct.html) upon matriculation. An agreement, signed by the student, affirming that the student intends to follow and uphold the ethical conduct established in both publications, will be added to the student’s file.

APPENDIX: STUDENT RESOURCES

Accessibility Policy

Students with disabilities have the right to full and equal access at the University of Cincinnati. The Accessibility Resources office on each campus will work with you and your instructors to identify reasonable accommodations to ensure an equitable opportunity to meet all requirements for your course. AR is also a resource for coordinating access and accommodation to all non-academic programs and opportunities available to UC students and potential students.

Contact Information:

Accessibility Resources Clifton: AccessResources@uc.edu

Religious Accommodations

Ohio law and the University's Student Religious Accommodations for Courses Policy 1.3.7 permits a student, upon request, to be absent for reasons of faith or religious or spiritual belief system or participate in organized activities conducted under the auspices of a religious denomination, church, or other religious or spiritual organization and/or to receive alternative accommodations with regard to examinations and other course requirements due to an absence permitted for the above-described reasons. Not later than fourteen days after the first day of instruction in the course, a student should provide the instructor with written notice of the specific dates for which the student requests alternative accommodations. For additional information about this policy, please contact the Executive Director of the Office of Equal Opportunity and Access at (513) 556-5503 or oeohelp@UCMAIL.UC.EDU.

Title IX

Title IX is a federal civil rights law that prohibits discrimination on the basis of a person's actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also address instances of sexual violence, dating or domestic violence, and stalking. If a student discloses a Title IX issue to a faculty member, the faculty member is required to forward that information to the Title IX Office. The Title IX office will follow up with the student and discuss how the University can take steps to address the impact on the student and the community. They will also inform the student of their rights and direct them to available resources. The priority is to make sure students are safe and successful here at the University of Cincinnati. Students are not required to talk to anyone in the Title IX Office. Students may also directly report any instance of sex or gender-based discrimination, harassment or violence to the Title IX office at 513-556-3349. Students who wish to know more about their rights and resources on campus, they can consult the [Title IX website](#) or contact the Title IX office directly at 513-556-3349.

Counseling Services, Clifton Campus

Students have access to counseling and mental health care through the University Health Services (UHS), which can provide both psychotherapy and psychiatric services. In addition, students can receive three free professional counseling sessions upon request through the Counseling and Psychological Services (CAPS). These sessions are not associated with student's insurance coverage. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other issue of concerns. After hours, students may call UHS at 513-556-2564 or CAPS Cares at 513-556-0648. For urgent physician consultation after-hours students may call 513-584-7777.

Counseling & Psychological Services (CAPS)

(513) 556-0648 (24 hours)

- Provides free, **confidential** crisis intervention, support groups, advocacy and ongoing individual counseling services to students who have experienced sexual violence, sexual harassment, stalking and/or intimate partner violence while enrolled at UC

- Emergent walk-in services are available during office hours, 8:30 - 4:00pm.
- After-hours helpline staffed by professional counselors available at (513) 556-0648
- Sexual Assault support counselors: Abby Lewis, MA, LICDC, LPCC

Title IX Office (Sex-Based Discrimination/Harassment & Sexual Violence)

- Provides investigation and accommodation for students filing a report with the University of Cincinnati. Reports may be filed through the Title IX Office website.
- Contact: Karla Phillips, Interim Title IX Coordinator (513) 556-3349

UC Police & Public Safety

(513) 556-1111

- The UC Police have a dedicated victim support team available for sexual assault survivors.
- Making a police report and ensuring that evidence is collected is important to preserve the option of prosecution, but it does not mean you have to prosecute.

Women Helping Women

(513) 381-5610

- Non-university, community-based free, **confidential** support, accompaniment and advocacy. Located at 215 East 9th St., 7th Floor.
- Provides support groups and hospital, court & police accompaniment
- Walk-in or call 24-hour crisis hotline (513) 381-5610

Note: Confidential services can be found only using pastoral care, CAPS, and University Health Services. All others trigger a report being filed.