

# MOLECULAR & INTEGRATIVE PHYSIOLOGY, MS

for the degree of Master of Science in Molecular & Integrative Physiology

**The Department of Molecular & Integrative Physiology (MIP) does not admit students to the Molecular & Integrative Physiology MS degree program.** Admission to graduate study is only through the PhD degree program. Information about the Molecular & Integrative Physiology degree PhD program can be found here (<http://catalog.illinois.edu/graduate/las/molecular-integrative-physiology-phd/>).

## Graduate Degree Program in Molecular & Integrative Physiology

Molecular & Integrative Physiology, PhD (<http://catalog.illinois.edu/graduate/las/molecular-integrative-physiology-phd/>)

The PhD program in molecular and integrative physiology is designed to provide individualized training in preparation for research and teaching careers in molecular, cellular, and integrative physiology. The objective of the training is to produce scientists who are technically competent and broadly educated. Students interested in the MIP PhD program must apply directly to the School of Molecular and Cellular Biology (<http://mcb.illinois.edu/>). During the first semester, students perform three laboratory rotations, choosing from any laboratory in the School. Students select a laboratory for their thesis research in December and formally join the appropriate graduate program at that time.

## Admission

Applicants interested in the Molecular & Integrative Physiology PhD program will need to apply directly to the School of Molecular and Cellular Biology (MCB) PhD program (<https://mcb.illinois.edu/graduate/gradprospect/>). The MCB PhD program is an umbrella program that requires admitted students to spend their first semester rotating among three different labs to explore their interests before joining one of our four departments.

MCB Admission requirements include a bachelor's degree in biological or physical sciences, a grade point average of a 3.0 or higher (A = 4.0), prior research experience, and three letters of recommendation from individuals who can attest to the applicant's academic and research background. The Graduate Record Examination (GRE) is **not** required. Applicants interested in pursuing a PhD in Molecular & Integrative Physiology should have a strong background in biology, chemistry, and mathematics. In addition to these requirements, non-native English speaking applicants must attain a minimum Test of English as a Foreign Language (TOEFL) overall score of 96, with a score of at least 22 on the speaking section. MCB does **not** accept the International English Language Testing System (IELTS) to show English proficiency. Graduate College requirements also apply.

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[graduate/las/molecular-integrative-physiology-phd/](http://catalog.illinois.edu/graduate/las/molecular-integrative-physiology-phd/)). For additional details and requirements refer to the Department's Student Guide (<http://mcb.illinois.edu/departments/mip/gradstudentguide.html>) and the Graduate College Handbook (<http://www.grad.illinois.edu/gradhandbook/>).

Code	Title	Hours
MCB 401 & MCB 402	Cellular Physiology and Sys & Integrative Physiology (College of Medicine M1 Physiology, both semesters, or equivalent, or proficiency exam.)	6
MCB 501	Advanced Biochemistry	4
MCB 502	Advanced Molecular and Cell Biology	4
MCB 509	Curr Topics Mol & Int Physiol	2
MCB 580	Res Ethics & Responsibilities	1
	Six credit hours taken from the department's Course Menu. See Course List tab.	6
	Required registration in MIP 595 each semester until passing the qualifying exam	0-8
MCB 581 & MCB 582 & MCB 583	Laboratory Rotation I and Laboratory Rotation II and Laboratory Rotation III	9
<b>Total Hours</b>		<b>32</b>

## Other Requirements

Requirement	Description
Other requirements may overlap	
Minimum Number of 500-level Hours Required Overall in Program:	12
Students whose native language is other than English are required to have passed the SPEAK test before taking the Qualifying Examination.	
Passing the qualifying exam is required.	
All core courses must be completed with grades of B or above.	
Minimum GPA:	2.75

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## Department Course Menu

Code	Title	Hours
<b>Lecture Format</b>		
MCB 400	Cancer Cell Biology	3
MCB 408	Immunology	3
MCB 410	Developmental Biology, Stem Cells and Regenerative Medicine	3
MCB 413	Endocrinology	3
MCB 419	Brain, Behavior & Info Process	3
MCB 429	Cellular Microbiology & Disease	3
MCB 431	Microbial Physiology	3
MCB 432	Computing in Molecular Biology	3
MCB 442	Comparative Immunobiology	4
MCB 461	Cell & Molecular Neuroscience	3

MCB 462	Integrative Neuroscience	3
MCB 571	Bioinformatics	4
MCB 480	Eukaryotic Cell Signaling	2
MCB 493	Special Topics Mol Cell Biol (Human Metabolic Disease)	1 to 4
ECE 480	Magnetic Resonance Imaging	3 or 4
ANSC 445	Statistical Methods	4
ANSC 542	Applied Bioinformatics	4
ANSC 554	Immunobiological Methods	3

**Journal-Club Format**

MCB 530	Reproductive Physiol Seminar	1
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**Laboratory Format**

MCB 403	Cell & Membrane Physiology Lab	1 or 2
MCB 404	Sys & Integrative Physiol Lab	1 to 2
BIOC 455	Technqs Biochem & Biotech	4
ECE 415	Biomedical Instrumentation Lab	2

**These courses need to be approved to count:**

MCB 493	Special Topics Mol Cell Biol
MCB 529	Special Topics in Cell and Developmental Biology
NEUR 520	Advanced Topics in Neuroscience
	MIP Seminars in Physiology

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1. Acquire in-depth, leading-edge knowledge of physiological function at multiple levels of biological organization spanning molecular, cellular, tissue and organismal levels.
2. Learn the skills and methodologies of scientific inquiry necessary to conduct original, independent research in physiology that expands the frontiers of knowledge in the field.
3. Develop the professional skills for responsible conduct of research and embody the ethical principles necessary to behave with honesty, integrity, objectivity, and respect in all professional interactions.
4. To develop effective scientific literacy skills necessary to read, write, critique, and analyze a wide range of written materials, including primary scientific literature, review articles, grant proposals, and teaching materials.
5. To become an effective oral communicator of scientific information in multiple settings, including individual and small group discussions, seminars, classroom instruction, and public engagement.

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**Department of Molecular & Integrative Physiology**

Head of Department: Claudio Grosman

Director of Graduate Studies: Lori Raetzman

Molecular & Integrative Physiology Department website (<https://mcb.illinois.edu/departments/mip/>)

524 Burrill Hall, 407 South Goodwin Avenue, Urbana, IL 61801  
(217) 333-1735

Molecular & Cellular Biology Graduate Admissions email ([mcb-grad@illinois.edu](mailto:mcb-grad@illinois.edu))

**College of Liberal Arts & Sciences**

College of Liberal Arts & Sciences website (<https://las.illinois.edu/>)

**School of Molecular & Cellular Biology**

School of Molecular & Cellular Biology website (<http://mcb.illinois.edu/>)

**Admissions**

Overview of MCB Admissions Requirements (<https://mcb.illinois.edu/graduate/gradprospect/>)

Graduate College Admissions & Requirements (<https://grad.illinois.edu/admissions/apply/>)