Molecular and Integrative Physiology

https://mcb.illinois.edu/departments/mip/

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Major: Molecular and Integrative Physiology  
Degrees Offered: M.S., Ph.D.

Medical Scholars Program: Doctor of Philosophy (Ph.D.) in Molecular and Integrative Physiology and Doctor of Medicine (M.D.) through the Medical Scholars Program (http://www.med.uiuc.edu/msp).  

Graduate Degree Program

The graduate 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. The program offers a Ph.D. in Molecular and Integrative Physiology and a joint M.D./Ph.D. degree in conjunction with the College of Medicine. Please note: Students interested in this program must apply directly to the School of Molecular and Cellular Biology (http://mcb.illinois.edu). The Department of Molecular & Integrative Physiology does not accept applications for the master’s degree. 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

Candidates for admission must meet the minimum standards established by the Graduate College for graduate study at the University of Illinois at Urbana-Champaign, but final selection of students who enter the molecular and integrative physiology program each fall is determined by an admissions committee. Admission beginning in the spring semester is rarely allowed except under extraordinary circumstances. Students should have strong undergraduate training in science. To be admitted, students should have a grade point average between an A and a B and three letters of recommendation that indicate ability to perform graduate work. All applicants are required to submit scores of the Graduate Record Examination (GRE) or similar examinations. Applicants whose native language is not English are required to submit the results of the Test of English as a Foreign Language (TOEFL). The department requires a minimum score of 590 on the paper-based TOEFL (243 on the computer-based test), the Graduate College requirement. For admission purposes, TOEFL scores are valid for only two years before the proposed term of entry.

Medical Scholars Program

Please note applications are not being accepted at this time.

The Medical Scholars Program permits highly qualified students to integrate the study of medicine with study for a graduate degree in a second discipline, including Molecular and Integrative Physiology. Students may apply to the Medical Scholars Program prior to beginning graduate school or while in the graduate program. Applicants to the Medical Scholars Program must meet the admissions standards for and be accepted into both the doctoral graduate program and the College of Medicine. Students in the dual degree program must meet the specific requirements for both the medical and graduate degrees. On average, students take eight years to complete both degrees. Further information on this program is available by contacting the Medical Scholars Program, 125 Medical Sciences Building, (217) 333-8146 or at www.med.uiuc.edu/msp (http://www.med.uiuc.edu/msp).

Graduate Teaching Experience

Experience in teaching is considered a vital part of the graduate program and is required as part of the academic work of all Ph.D. candidates in this program. Minimum teaching requirement is 50% for one semester. However, it is strongly recommended that students gain experience equivalent to 50% for at least two semesters.

Financial Aid

Financial support is guaranteed for all students who remain in good academic standing.

Master of Science in Molecular and Integrative Physiology

The M.S. is earned in route to the Ph.D. degree. Students are not admitted to the M.S. program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCB 401</td>
<td>Cell &amp; Membrane Physiology</td>
<td>6</td>
</tr>
<tr>
<td>&amp; MCB 402</td>
<td>and Sys &amp; Integrative Physiology (College of Medicine M1 Physiology, both semesters, or equivalent, or proficiency exam.)</td>
<td>6</td>
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<tr>
<td>MCB 501</td>
<td>Advanced Biochemistry</td>
<td>4</td>
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<tr>
<td>MCB 502</td>
<td>Advanced Molecular Genetics</td>
<td>4</td>
</tr>
<tr>
<td>MCB 509</td>
<td>Curr Topics Mol &amp; Int Physiol</td>
<td>2</td>
</tr>
<tr>
<td>MCB 580</td>
<td>Res Ethics &amp; Responsibilities</td>
<td>1</td>
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<tr>
<td>Six credit hours taken from courses listed on the department's Course Menu</td>
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<tr>
<td>Required registration in MIP 595 each semester until passing the qualifying exam</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MCB 581</td>
<td>Laboratory Rotation I</td>
<td>9</td>
</tr>
<tr>
<td>&amp; MCB 582</td>
<td>and Laboratory Rotation II</td>
<td></td>
</tr>
<tr>
<td>&amp; MCB 583</td>
<td>and Laboratory Rotation III</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
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<td>32</td>
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</tbody>
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Other Requirements

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.

The qualifying exam is required.

All core courses must be completed with grades of B or above.

Information listed in this catalog is current as of 07/2017
Minimum GPA: 2.75

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).

Doctor of Philosophy in Molecular and Integrative Physiology

The doctoral program uses a flexible approach to curriculum requirements. Students are required to take two core courses, three laboratory rotations (five weeks each), and electives. The students in consultation with a faculty advisory committee choose additional courses in chemistry, biochemistry, immunology, molecular biology, mathematics, and cell biology. Students are encouraged to begin research as soon as they identify an area of research interest.

The department has a particularly strong focus in cell physiology, comparative physiology, computational biology, neurophysiology, and endocrinology. Courses and lab research are supplemented by a weekly seminar series. Toward the end of the second year, students must submit a report describing their initial research and pass an oral qualifying examination in order to continue in the Ph.D. program. One year after their qualifying examinations, and no later than the end of their eighth semester in the program, students are expected to take their preliminary examinations in which they present their thesis topic and preliminary research to a faculty committee. Finally, a thesis, which is based on original work in one area of physiology and which demonstrates a thorough knowledge of underlying theories and experimental approaches, must be defended at the final examination. Most students complete their Ph.D. training in four to five years.

Entering with approved M.S. degree

MCB 401 Cell & Membrane Physiology 6
& MCB 402 Cell & Membrane Physiology (College of Medicine M1 Physiology, both semesters, or equivalent, or proficiency exam.)

MCB 501 Advanced Biochemistry 4
MCB 502 Advanced Molecular Genetics 4
MCB 509 Curr Topics Mol & Int Physiol 2
MCB 580 Res Ethics & Responsibilities 1
McB 581 Laboratory Rotation I 9
& McB 582 Laboratory Rotation II
& McB 583 Laboratory Rotation III
Six credit hours taken from courses listed on the department’s Course Menu.

Required registration in MIP 590 each semester until passing the qualifying exam
Thesis Hours Required (0 min applied toward degree) 0
Total Hours 96

Other Requirements 1

Other requirements may overlap

All graduate students in the program are required to teach during their graduate training. The minimum teaching requirement is 50% for one semester.

Successful completion of 96 hours of study (including the Core Courses with a grade A or B).

Qualifying Exam Required Yes
Preliminary Exam Required Yes
Final Exam/Dissertation Defense Required
Dissertation Deposit Required Yes
Minimum GPA: 2.75

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).

Entering with approved B.S. degree

MCB 401 Cell & Membrane Physiology & MCB 402 Cell & Membrane Physiology (College of Medicine M1 Physiology, both semesters, or equivalent, or proficiency exam.)

MCB 501 Advanced Biochemistry 4
MCB 502 Advanced Molecular Genetics 4
MCB 509 Curr Topics Mol & Int Physiol 2
MCB 580 Res Ethics & Responsibilities 1
MCB 581 Laboratory Rotation I & MCB 582 Laboratory Rotation II & MCB 583 Laboratory Rotation III
Six credit hours taken from courses listed on the department’s Course Menu.

Required registration in MIP 590 each semester until passing the qualifying exam
Thesis Hours Required (0 min/max applied toward degree) 0
Total Hours 96

Other Requirements 1

Other requirements may overlap

All graduate students in the program are required to teach during their graduate training. The minimum teaching requirement is 50% for one semester.

Successful completion of 96 hours of study (including the Core Courses with a grade A or B).

Qualifying Exam Required Yes
Preliminary Exam Required Yes
Final Exam/Dissertation Defense Required
Dissertation Deposit Required Yes
Minimum GPA: 2.75

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).