**PHYSIOLOGY (MS)**

**Master of Science in Physiology**
Unit: School of Medicine (http://louisville.edu/medicine/) (GM)
Department Website: Physiology (http://louisville.edu/medicine/departments/physiology/)
Program Website (http://louisville.edu/medicine/departments/physiology/degrees/ms-pb/)
Academic Plan Code(s): PHZBMS

**Program Information**

**General Procedures and Requirements for the Degree of Master of Science in Physiology**

**Program Overview and Objectives**

The Department of Physiology is located in the Health Sciences Center of the University of Louisville which provides our graduate students with an active and intellectually stimulating environment. Our Graduate Program offers a Master of Science degree to provide several career options:

a. To develop competence in directed research for advanced technical positions in industry, government, and university medical research laboratories;
b. To prepare students with a good general knowledge of human physiology to enable them to communicate physiological concepts to future students; and
c. To explore the possibility of a future career as an independent scientist in medically-related research.
d. To enhance student credentials for admission to and performance in professional health care programs.

**Minimal Requirements for the Master’s Degree**

The typical Master of Science (MS) Graduate Program includes a directed research emphasis and consists of 30 credit hours typically over a twelve-month period (three semesters) to include the following: 18 credit hours of basic medical sciences coursework and at least 12 credit hours of electives.

**Advisor Selection**

The Director of Graduate Studies will meet with the new student to discuss the academic and research interests. The Director of Graduate Studies will serve as a Temporary Advisor until a Permanent Advisor is selected.

During the first semester of their graduate study, beginning graduate students will visit research laboratories in which they have an interest. First-year students must select a Principal Advisor. The selection process involves approval by the student, the Principal Advisor, the Director of Graduate Studies, and the Department Chair.

**Admission Requirements**

The University of Louisville graduate catalog gives a general description of admission procedures. Application information can be found on the Graduate School website.

The following application items must be submitted to the Graduate School at the University of Louisville:

a. Graduate application (http://www.louisville.edu/graduate/apply/).

b. One official transcript of the applicant’s previous work for each college or university that has been previously attended.

c. Two letters of recommendation from people who are well acquainted with the applicant’s previous academic work.

d. TOEFL, IELTS or Duolingo examination scores for foreign students from non-English speaking countries.

e. A non-refundable application fee to the University of Louisville.

Applicants must state in a letter to the Department but submitted to the Graduate School (referred to as the Personal Statement in the application materials), why they desire a MS degree in the Department of Physiology.

Successful applicants generally demonstrate the following:

- A cumulative undergraduate grade point average that is usually 2.8 or higher on a scale of 4.00 (A=4, B=3, etc.)
- In the case of a foreign applicant from a non-English speaking country, the applicant must achieve a TOEFL Examination score >85 on the internet exam.

**Program Requirements**

At least 30 credit hours beyond the baccalaureate degree are required for the degree of Master of Science. A maximum of six (6) credit hours may be credited from post-baccalaureate work in other professional or graduate degree programs.

**Minimum Course Requirements**

The typical MS program must include the following courses taken on a grade basis:

**Code** | **Title** | **Hours**
--- | --- | ---
PHZB 605 | Systemic Physiology I | 5
PHZB 606 | Systemic Physiology II | 5
BIOC 645 | Advanced Biochemistry I | 4
BIOC 647 | Advanced Biochemistry II | 4
Electives (see list below) | | 12

**Minimum Total Hours**

30

**Academic Performance**

A student must have at least a 3.0 accumulated GPA to be graduated with a degree of Master of Science in Physiology. In general, a student with a GPA less than 3.0 at the end of the second semester will require a two-thirds majority vote of the Departmental faculty to continue in the Program.

A student may not graduate with more than six (6) credit hours of C grades in their required courses.

**Electives**

All electives must be graduate-level courses.

Electives may include but are not limited to:

**Code** | **Title** | **Hours**
--- | --- | ---
**Fall Electives**
PHZB 604 | Stem Cell Biology and Regenerative Medicine | 3
PHZB 607 | Principles of Presentations: Self, Science, Interviews | 3
PHZB 617 | Seminar in Physiology and Biophysics | 1
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HZB 619</td>
<td>Research</td>
<td>1-20</td>
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<tr>
<td>MBI 601</td>
<td>Molecular Microbiology</td>
<td>2</td>
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<td>MBI 602</td>
<td>Immunology</td>
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<td>HZB 630</td>
<td>Biomedical Applications of Physiology in the Eye</td>
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<td><strong>Spring Electives</strong></td>
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<td>HZB 608</td>
<td>Physiological Concepts Related to the Metabolic Syndrome</td>
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<td>HZB 611</td>
<td>Advanced Human Cardiovascular Physiology</td>
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<tr>
<td>HZB 617</td>
<td>Seminar in Physiology and Biophysics</td>
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<td>HZB 619</td>
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<td>BOC 667</td>
<td>Cell Biology</td>
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<td>BOC 675</td>
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<td><strong>Summer Electives</strong></td>
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<tr>
<td>HZB 615</td>
<td>Clinical Physiology</td>
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**Other Potential Graduate Elective Course Areas:**

- Communications
- Sociology
- Psychology
- Biostatistics
- Public Health
- Pharmacology
- Oral Biology