

# PHYSIOLOGY (MS)

## Master of Science in Physiology and Biophysics (PHZBMS)

Unit: School of Medicine (<http://louisville.edu/medicine>) (GM)

Department/Program Webpage: [louisville.edu/medschool/physiology/](http://louisville.edu/medschool/physiology/)

## Program Information

### General Procedures and Requirements for the Degree of Master of Science in the Department of 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:

1. To develop competence in directed research for advanced technical positions in industry, government, and university medical research laboratories;
2. To prepare students with a good general knowledge of human physiology to enable them to communicate physiological concepts to future students; and
3. To explore the possibility of a future career as an independent scientist in medically-related research.
4. 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 thirty (30) credit hours typically over a twelve-month period (3 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 School of Interdisciplinary and Graduate Studies website ([louisville.edu/graduate/apply](http://louisville.edu/graduate/apply)). The following application items must be submitted to the the School of Interdisciplinary and Graduate Studies, Graduate Admissions at the University of Louisville:

1. One official transcript of the applicant's previous work for each college or university that has been previously attended
2. Two letters of recommendation from people who are well acquainted with the applicant's previous academic work.
3. Applicants must forward scores from the Analytical, Verbal and Quantitative portions of the Graduate Record Examination

(GRE). Satisfactory MCAT, DAT, OAT or similar test scores may also be accepted in lieu of the GRE.

4. TOEFL Examination scores for foreign students from non-English speaking countries.
5. A non-refundable application fee to the University of Louisville.

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

Successful applicants generally demonstrate the following:

1. A cumulative undergraduate grade point average that is usually 2.80 or higher on a scale of 4.00 (A=4, B=3, etc.)
2. A Graduate Record Examination Score which usually averages at the 40th percentile or higher in the verbal, quantitative and analytical sections. Satisfactory MCAT scores will also be accepted in lieu of the GRE.

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.

### Procedures for Determining Admissions

Two committees will control student admission into the Department Graduate Programs: The Graduate Program Executive Committee (GPEC) and the Graduate Admission Committee (GAC). The GPEC will recommend students to be interviewed based upon a dossier of information obtained from the School of Interdisciplinary and Graduate Studies, Graduate Admissions. The GAC will conduct student interviews and vote on admission as representatives of the entire faculty of the Department.

#### Structure of Admission Committees

The GPEC will consist of the Director of Graduate Admissions, the Director of Graduate Studies, and one other Departmental faculty member, all of whom are appointed by the Departmental Chair for staggered five-year terms.

The GAC will be composed of three tenured or tenure-track Department faculty members and members of GPEC, for a total membership of six. The full-time faculty of the Department will elect the three faculty representatives to GAC for staggered three-year terms.

#### Functions of the Admission Committees

The GPEC evaluates all requests for admission into the Program. The Director of Admissions will create a dossier of information on applicants that complete the application process. This dossier will be derived from PeopleSoft and OnBase databases. A completed applicant dossier (i.e., all application material) will be submitted to GPEC for evaluation. The GPEC will determine if an applicant should be voted on by the entire admissions committee, interviewed prior to determination of a vote, or not eligible for the program.

Student admission will require a simple majority recommendation from GAC. The recommendation of GAC is forwarded to the Director of Graduate Admissions. Completion of the admission process is accomplished by submission of a Referral Form to SIGS and delivery of the GPEC Report and complete dossier on admitted students to the Departmental Office. The Referral Form will initiate an acceptance or denial letter to the student. The GPEC Report and the complete dossier

becomes the Department File on the admitted student and are transferred to the Director of Graduate Studies.

When an applicant is accepted into the Department Graduate Program, The Department Chair will send a letter of acceptance. The prospective student must provide a letter indicating their acceptance of admission to the Department Graduate Program.

## Program Requirements

At least 30 credit hours beyond the Baccalaureate Degree are required for the degree of Master of Science. A maximum of 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<br>& PHZB 606     | Systemic Physiology I<br>Systemic Physiology II | 10    |
| 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 and Biophysics. 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 be graduated with more than 6 credit hours of C grades in their required courses.

### Electives

All electives must be graduate levels courses.

Electives may include but are not limited to:

| Code                    | Title  | Hours |
|-------------------------|--|-------|
| <i>Fall Electives</i>   |  |       |
| PHZB 625                | Experimental Physiology Methods                  | 1     |
| PHZB 617                | Seminar in Physiology and Biophysics             | 1     |
| PHZB 619                | Research   | 1-20  |
| MBIO 601                | Molecular Microbiology                           | 2     |
| MBIO 602                | Immunology                                       | 3     |
| <i>Spring Electives</i> |  |       |
| PHZB 617                | Seminar in Physiology and Biophysics             | 1     |
| PHZB 619                | Research   | 1-20  |
| PHZB 630                | Biomedical Applications of Physiology in the Eye | 3     |
| BIOC 667                | Cell Biology                                     | 3     |
| BIOC 675                | Cancer Biology                                   | 4     |
| <i>Summer Electives</i> |  |       |
| PHZB 619                | Research   | 1-20  |
| PHZB 615                | Clinical Physiology                              | 6     |

### Other Potential Graduate Elective Course Areas:

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