

# Master of Arts in Physiology & Biophysics



## Program Overview

The 32-credit MA programs in Biophysics or in Physiology prepare students to plan and execute research at the molecular, cellular and organismal level for careers in industry, government, or academia. Students engage in laboratory research (with the option of rotating through multiple laboratories) and perform original research, building strong presentation and writing skills. Many students in the program continue on to pursue doctoral studies and the program emphasizes collaboration among research groups.

## Program Highlights

- Access to extensive facilities and instrumentation for state-of-the-art physiological and biophysical research including core facilities in:

- Biophysics
- Electrophysiology
- Molecular biology
- NMR
- Spectroscopy
- Structural electron microscopy
- Thermodynamics
- X-ray crystallography

- Work with internationally-recognized faculty in state-of-the-art research laboratories.
- Collaborate with peers, PhD students, post-doctoral fellows, and research technicians.
- Participate in weekly departmental seminar series.
- Select a faculty advisor and create a plan for original research culminating with a literature-based or short, laboratory-based thesis.
- Learn to communicate and collaborate effectively with medical personnel, chemists, engineers, physiologists, and physicists.

*Graduates will understand biological systems at the molecular level and in the context of the cell and organism in line with the NIH initiative to encourage training across scientific and medical disciplines.*

**- Dr. Venetia Zachariou**

*Chair, Department of Pharmacology, Physiology & Biophysics*



## Program Requirements

- Students are required to take three modules from the Foundations in Biomedical Science curriculum: Protein Structure, Cell Dynamics, and Cellular Physiology.
- Students are required to take a minimum of one physiology course and one biophysics course.
- Students will also take a Special Topics Seminar Course (4-6 credits spread over 2-3 semesters) aimed at developing the student's ability to read and present the merits and/or deficits of scientific literature. Typically, this course meets for two hours each week, and all students will present once each semester.
- Students must maintain a grade point average of 3.0 or higher.

## Curriculum

### First-Year Students

- Participate in Foundations in Biomedical Sciences (FiBS) core curriculum
- FC 701 - Protein Structure, Catalysis & Interaction (Required Course)
- FC 703 - Architecture & Dynamics of the Cell (Required Course)
- FC 707 - Physiology of Specialized Cells (Required Course)

### Additional Foundational Courses

- FC 702 - Structure and Function of the Genome
- FC 704 - Mechanisms of Cell Communication
- FC 705 - Translational Genetics and Genomics
- FC 706 - Molecular Metabolism

### Select elective courses focused on area-specific interests from core disciplines such as:

- |                         |                                     |
|-------------------------|-------------------------------------|
| • Biochemistry          | • Microbiology                      |
| • Biophysics            | • Molecular Medicine                |
| • Genetics and Genomics | • Pathology and Laboratory Medicine |
| • Immunology Training   |                                     |
| • Medical Nutrition     | • Physiology                        |

### In addition to this coursework, students will:

- Engage in laboratory research with the option to rotate through multiple labs
- Attend research seminars
- Begin thesis research

### Second-Year Students

- Continue taking classes if needed or desired
- Develop and carry out Masters research project

## Admissions Requirements

- The program seeks students from a wide range of backgrounds. We are especially interested in candidates with research experience.
- Students should have earned excellent grades in a rigorous undergraduate curriculum. Biophysics candidates will have completed coursework in organic chemistry and physics or physical chemistry. Physiology candidates will have completed coursework in organic chemistry and physiology or biochemistry.
- The GRE general test and a subject test are optional. Letters of recommendation are important to the Admissions committee, as is a written personal statement. For applicants with degrees from outside the U.S. whose native language is not English, TOEFL scores must be submitted.
- To apply to the program, please visit [bu.edu/gms/admissions](https://bu.edu/gms/admissions)

## Tuition, Financial Aid and Student Resources

For the most up-to-date information on tuition and fees, visit [www.bumc.bu.edu/gms/admissions/student-financial-services/](https://www.bumc.bu.edu/gms/admissions/student-financial-services/).

The Financial Aid Office at Boston University Chobanian & Avedisian School of Medicine is available to assist students identifying sources of financial support. For more details, please visit [bumc.bu.edu/osfs](https://bumc.bu.edu/osfs).

The BU Office of Housing Resources provides information regarding housing, transportation, and Boston neighborhoods. For more details, visit [www.bumc.bu.edu/ohr](https://www.bumc.bu.edu/ohr).

## Contact

**For more information, please contact:**

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