



THE OHIO STATE UNIVERSITY  
COLLEGE OF MEDICINE

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## Biomedical Sciences Graduate Program (BSGP) “The Biology of Human Disease”

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## Welcome From BSGP Leadership

Thank you for your interest in the Biomedical Sciences Graduate Program at The Ohio State University Wexner Medical Center.

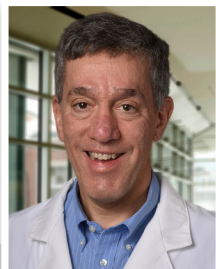
Our goal is to train talented, predoctoral students in interdisciplinary approaches to biomedical research, to think critically and to acquire the proficiencies needed for future success in the rapidly evolving fields within biomedical sciences. Designed to allow graduate students to build a solid foundation for their professional lives as biomedical researchers, the BSGP curriculum maintains high standards of intellectual rigor, fosters creativity and passion for research and provides research opportunities with selected faculty that cross traditional disciplinary boundaries.

The BSGP is an umbrella program that includes faculty from multiple departments, and the required courses are the same for all students. We seek to train our students to become part of the biomedical scientist workforce and to make meaningful scientific discoveries in academia, industry and government. We welcome students of diverse scientific backgrounds who have the ambition to excel in biomedical research, in both basic research and in science that translates basic research into the medical clinic.



**Michael A. Freitas, PhD**

Co-Director, Biomedical Sciences Graduate Program; Director, Proteomics Shared Resource, OSUCCC; Associate Professor, Department of Cancer Biology and Genetics



**Jeffrey Parvin, MD, PhD**

Co-Director, Biomedical Sciences Graduate Program; Associate Dean for Graduate Studies; Professor, Department of Biomedical Informatics



**Amy Lahmers**

Administrative Director, Biomedical Sciences Graduate Program

## About the Program

The central theme of the Biomedical Sciences Graduate Program is "The Biology of Human Disease." The mission of the program is to improve health care through innovation in research based on an understanding of the function of multiple organ systems and physiological processes.

We offer predoctoral trainees a curriculum that maintains high standards for intellectual rigor and creativity, with access to research opportunities that cross traditional disciplinary barriers.

### Program Highlights

- Broad-based, interdisciplinary curriculum
- Integrative, disease-based approach in basic sciences and translational research
- Early lab experience working alongside Ohio State research scientists
- Eleven areas of research emphasis
- Top-ranked medical school in a nationally recognized academic medical center
- iPad-facilitated curriculum
- Annual student retreat with travel award competition
- Analytics training
- Emphasis on science writing and communication
- Grant proposal-based admission to candidacy examination
- Annual individual development plan (IDP)

### Program Statistics

**Students admitted annually:**  
**20-30**

**Average GPA:**  
**3.60**

**Total enrollment:**  
**131**

**Female:**  
**58**

**Male:**  
**73**

**Underrepresented:**  
**21**

**Fellowship awards:**  
**48**

**Student peer-reviewed publications/year:**  
**99**

## The Curriculum

The **Biomedical Sciences Graduate Program** curriculum is efficient, rigorous and balanced and designed to provide both breadth and depth of high-quality training to prepare graduates for successful careers in biomedical research. In addition to the core courses provided in the first and second years and in agreement with their chosen advisor, students also complete coursework associated with a specific area of research emphasis that enhances their depth of understanding in that research area.

### Areas of Research Emphasis

Although the Biomedical Sciences Graduate Program is an interdisciplinary program and promotes collaborative interactions, each student will develop a strong core of expertise that can be within an established area of research. Most students focus their studies on one or more of several established “areas of research emphasis,” completing specific curricular requirements in order to request transcript designation.

*The eleven areas of research emphasis are:*

- Anatomy • Biological Chemistry • Cancer Biology •
- Cellular and Molecular Physiology • Computational Biology and Bioinformatics •
- Experimental Therapeutics • Genetics and Genomics • Immunology •
- Microbial Pathogenesis • Neuroscience and Neuromuscular Diseases
- Translational Research



## Curriculum

### Year One

- Laboratory rotations begin during the first semester. Students will rotate in two or more laboratories of their choosing.
- Biomedical Sciences Concepts: Covers topics relevant to the mechanisms of human disease and emphasizes a systems-integrated perspective on human disease and biomedical research.
- Professional and Ethical Issues in Biomedical Sciences: Offers formal training in the responsible and ethical conduct of research.
- Research Techniques and Resources: Provides laboratory safety training, introduces techniques, promotes presentation skills and informs students of core resources available.
- Research Problem-Solving: Allows trainees to dissect, discuss and critique journal papers relevant to the core course topics.
- Select dissertation advisor by spring of first year.

### Year Two

- Fundamentals of Grant Writing: A course in the essential aspects of grant writing, using the student's thesis proposal.
- Methods in Biomedical Informatics and Data Science: A course in bioinformatics and statistics with beginning computer programming.
- Choose one or more areas of research emphasis.
- Begin elective coursework in area of research emphasis.

### Year Three and Subsequent Years

After successful completion of the candidacy examination, students will work primarily on their research projects, take elective courses in their area of research emphasis and attend research seminars, research-in-progress seminars, laboratory meetings and professional development meetings.



## Where Research Meets Practice

The Ohio State University research scientists are at the forefront of translating basic science into clinical applications. The hallmark of scientific and discovery-based biomedical research at The Ohio State University Wexner Medical Center is the integration of diverse disciplines to solve our most challenging biological questions and healthcare problems.

Ranked among the best hospitals in the nation, Ohio State Wexner Medical Center is a comprehensive medical facility with a three-part mission of research, teaching and patient care. Its facilities include Ohio State College of Medicine, six hospitals, two free-standing research institutes and a network of more than a dozen community-based primary and specialty care facilities throughout central Ohio.

The Ohio State University Wexner Medical Center offers 25 core research laboratories for shared use by health sciences investigators. Clinical research faculty, basic scientists and students all benefit from the shared cost of these resources, and the research environment at Ohio State benefits from the economies of scale that enable timely acquisition of new instrumentation and technologies.



## Research Excellence

- One of only 64 members of a National Institutes of Health consortium that speeds the translation of scientific discovery into better patient care
- One of only 49 National Cancer Institute-Designated comprehensive cancer centers (CCCs) in the United States; the NCI named our CCC “exceptional”—its highest ranking
- Four faculty members currently elected to the Institute of Medicine and two to the National Academy of Sciences
- More than 2,000 clinical research studies in every medical specialty

Learn more about the Biomedical Sciences Graduate Program at  
The Ohio State University Wexner Medical Center:

[medicine.osu.edu/bsgp](https://medicine.osu.edu/bsgp)





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COLLEGE OF MEDICINE

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Biomedical Sciences Graduate Program**

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