



University of
Pittsburgh®

Graduate Studies
School of Medicine

LEADERS IN RESEARCH

SHAPING THE FUTURE OF BIOMEDICAL SCIENCE



PhD Programs

Our PhD programs offer the opportunity to contribute to groundbreaking biomedical investigations. Students can explore a personalized training path with research ranging from fundamental mechanistic biology to clinical translation.

Biomedical Informatics

Clinical and Translational
Science

Computational Biology

Integrative Systems
Biology

Interdisciplinary Biomedical
Graduate Program

Microbiology and
Immunology

Molecular Biophysics and
Structural Biology

Neuroscience/Neurobiology

Student Support

- Commitment to a diverse and inclusive training environment.
- PhD students receive a \$32,000 stipend, full tuition remission, and health insurance.
- Attention to professional development, career exploration, and planning.

DOCTORAL DEGREE IN **BIOMEDICAL INFORMATICS**

The PhD program in Biomedical Informatics trains students to conduct innovative research at the intersection of biomedicine and computing. The program welcomes talented individuals who may be health professionals seeking formal training in information technologies and computational methods, or students from scientific and technical backgrounds who seek to prepare for careers emphasizing biomedical applications of information technology.

Research Areas:

- Artificial intelligence/Machine learning
- Clinical informatics
- Imaging informatics
- Translational bioinformatics
- Public health informatics and biosurveillance
- Pharmacoepidemiology
- Data repositories
- Data science



www.dbmi.pitt.edu

DOCTORAL DEGREE IN **CLINICAL AND TRANSLATIONAL SCIENCE**



The curriculum for the doctoral degree in Clinical and Translational Science comprises several components that enable students to engage simultaneously in didactic coursework and practical research experiences. The PhD in CTS emphasizes training of clinical residents and MSTP trainees (MD/PhD).

**Deadline to Apply:
January 31**



www.icre.pitt.edu

DOCTORAL DEGREE IN **COMPUTATIONAL BIOLOGY**



This collaborative program is offered by the University of Pittsburgh (Pitt) and Carnegie Mellon University (CMU). Students receive their doctoral degree from either university, based on the appointment of their advisor. By providing intensive interdisciplinary training, the program enables students to become the leaders of tomorrow. Students identify and solve biological problems using computational, mathematical methods, together with fundamental principles of life and physical sciences.

Research Areas:

- Bioimage informatics
- Cellular and systems modeling
- Computational genomics
- Computational structural biology

Deadline to Apply:
December 10

 [**www.compbio.cmu.edu**](http://www.compbio.cmu.edu)

DOCTORAL DEGREE IN **INTEGRATIVE SYSTEMS BIOLOGY**

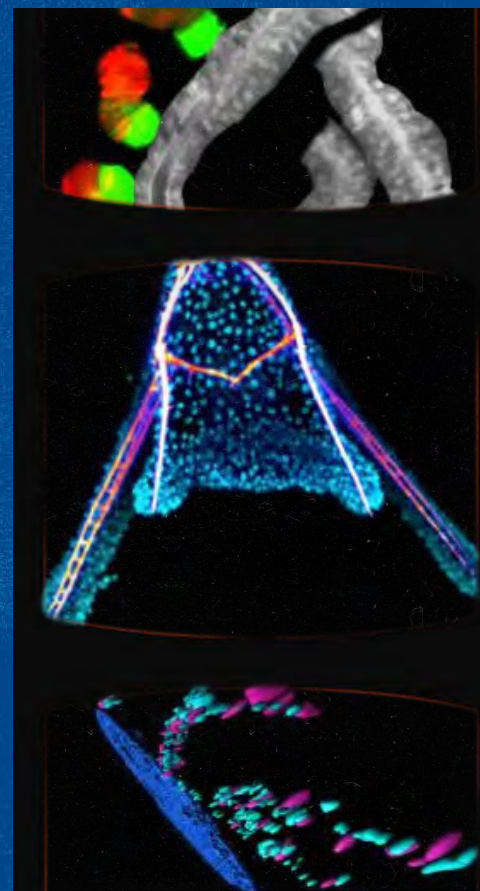
Students in the Integrative Systems Biology PhD program take courses that teach them how to attack complex problems using integrated, multidisciplinary approaches. The program emphasizes rapid six-week rotations and streamlined coursework. The curriculum is designed so that you can rapidly engage in laboratory research, while tailoring your training to your educational goals.

Research Areas:

- Developmental biology
- Cell & systems biology
- Genes & evolution
- Disease mechanisms & models
- Quantitative drug discovery

Deadline to Apply:
December 15

www.isb.pitt.edu



INTERDISCIPLINARY BIOMEDICAL GRADUATE PROGRAM

The IBGP umbrella program prepares students for research careers in the biological and biomedical sciences. Year one focuses upon interdisciplinary core concepts in cell and molecular biology coupled with three laboratory rotations. Students then match with a mentor and transition into one of four PhD granting programs:



Cell Biology & Molecular Physiology

Innovative and interdisciplinary approaches to define fundamental cell and molecular biological processes.



Cellular & Molecular Pathology

Multi-faceted scientific approaches to the study of normal and diseased tissues with a focus on developing translational solutions.

Molecular Genetics & Developmental Biology

Study of developmental and reproductive biology, molecular genetics, DNA repair and aging, stem cells, and regenerative biology.

Molecular Pharmacology

Pharmacological approaches to the study of disease with a focus on cancer, neuropharmacology, and drug discovery.

**Deadline to Apply:
December 1**



www.gradbiomed.pitt.edu

DOCTORAL DEGREE IN **MICROBIOLOGY AND IMMUNOLOGY**

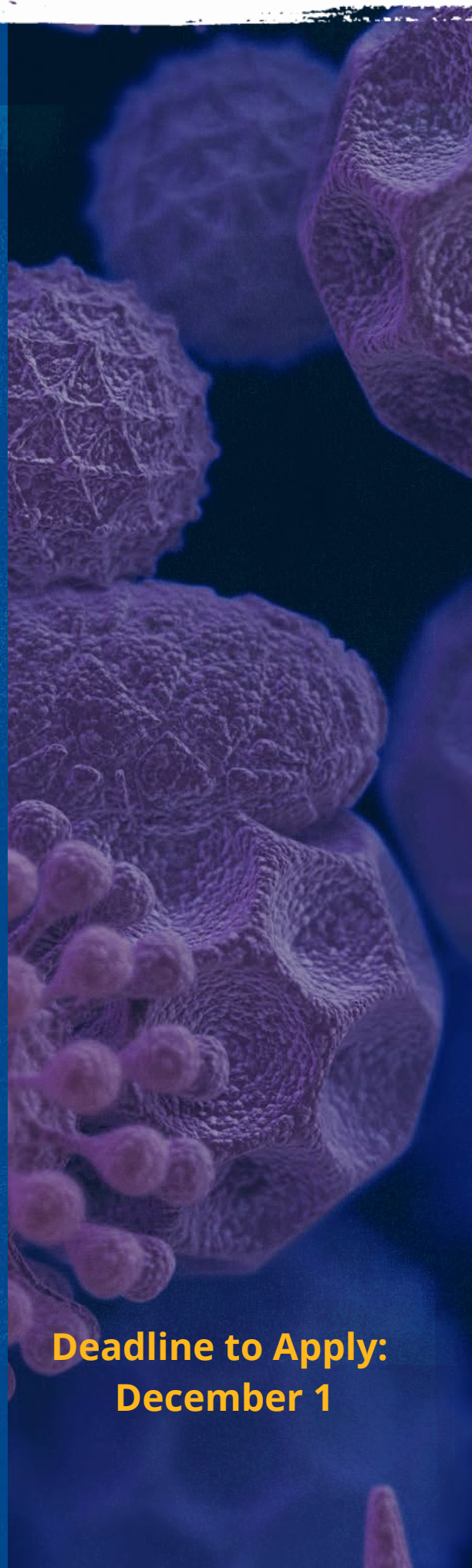
The Program in Microbiology and Immunology (PMI) aims to train highly motivated PhD students as self-reliant scholars in an environment with access to the breadth of expertise, approaches, and sub-disciplines that constitute the diverse fields encompassing microbiology and immunology.

Research Areas:

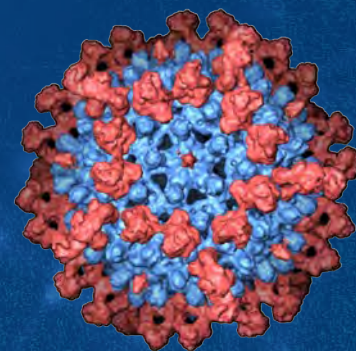
- Autoimmunity
- Basic immunological mechanisms
- Bacteriology
- Cancer immunology
- Antimicrobial therapies
- Host-pathogen interactions
- Immunology of organ transplantation
- Innate immunity
- Parasitology
- Viral and bacterial pathogenesis
- Virology

 **www.pmi.pitt.edu**

**Deadline to Apply:
December 1**



DOCTORAL DEGREE IN **MOLECULAR BIOPHYSICS AND STRUCTURAL BIOLOGY**



This doctoral program brings together faculty across the Dietrich School of Arts & Sciences and the School of Medicine at the University of Pittsburgh, as well as faculty of various departments at Carnegie Mellon University. It aims to provide a fertile and collaborative research and learning experience to its students, and has allowed current and previous students to explore a range of fascinating research topics. The program trains students to conduct research at the interface of biology, chemistry, physics, and other traditional disciplines to unravel and explain biological phenomena in atomic and molecular detail.

Research Areas:

- Biophysical methods
- Cellular biophysics
- Chemical structure & dynamics
- Gene regulation & signaling
- Lipid membranes & protein interactions
- Macromolecular recognition
- Principles of protein structure & dynamics
- Structure & dynamics of membrane
- Virus structure & nano-machinery

DOCTORAL DEGREE IN **NEUROSCIENCE/ NEUROBIOLOGY**

This program is overseen through the Center for Neuroscience at the University of Pittsburgh (CNUP). It is designed to develop competence in conducting laboratory research, general knowledge of neuroscience and specific expertise in one or more areas of neuroscience, and general professional competence in oral and written expression necessary for a career in science.

**Deadline to Apply:
December 1**

Research Areas:

- Auditory System
- Autonomic Regulation, Viscerosensation and Neuroendocrinology
- Axonal Guidance and Synaptogenesis
- Balance and Vestibular Function
- Central Control of Movement
- Computational Neuroscience
- Cortical Circuits
- Drug Abuse and Addictive Behavior
- Genesis, Survival, and Differentiation of Neurons
- Learning and Memory
- Neurodegeneration and Neurodegenerative Diseases
- Neurotransmitter Receptors, Ion Channels and Membrane Transporters
- Neurotransmitter Release and Signal Transduction
- Pain and Pain Mechanisms
- Plasticity of Circuits and Synapses
- Schizophrenia and Affective Disorder
- Stress and Stress-related Disorders
- Visual System



www.cnup.pitt.edu