BIOMEDICAL AND BIOLOGICAL SCIENCES (PHD)

Program Website (https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/)

CIP: 26.0101 | **HEGIS:** 0401.00 | **NYSED:** 39643

Graduate Field

Biomedical and Biological Sciences (https://catalog.cornell.edu/graduate-school/biomedical-biological-sciences/)

Program Description

The Cornell University Biomedical and Biological Sciences (BBS) Graduate Program is an interdisciplinary program consisting of outstanding graduate students conducting state-of-the-art basic, clinical and translational life sciences research alongside their world-renowned faculty mentors and other research professionals. Housed in the heart of biomedical research at the Cornell-Ithaca campus in the College of Veterinary Medicine, the BBS program takes advantage of outstanding research facilities, the vibrant Cornell undergraduate campus and strong links to the Weill Cornell Medical College campus in New York City. The BBS Program fosters a nurturing, student-centered community of scholars that is accessible, engaging and committed to ensuring that our graduate students reach their full potential in research, teaching and professional development. Students in the BBS field will select Special Committee chairs associated with one of five concentrations: Immunology and Infectious Disease, Molecular and Cellular Medicine, Population Medicine and Epidemiology, Translational Medicine, and Zoology and Wildlife Conservation.

Concentrations

Population Medicine and Epidemiology

Represents the study of health and disease in a population and the underlying factors that lead to these conditions. The goal of this research is to prevent the spread and/or future incidents of illness. As such, it is considered the cornerstone of public health, production medicine, and preventive medicine.

Immunology and Infectious Disease

The concentration of Immunology and Infectious Disease has a substantial cadre of faculty members and students working in the areas of infection and immunity, cellular immunology, immune regulation, immunogenetics, and immunopathology. There are also members currently carrying out studies in the areas of immunotoxicology, membrane biochemistry, developmental immunology, immunoparasitology, and related fields.

Molecular and Cellular Medicine

Faculty and trainees are engaged in investigations of fundamental cellular processes and the mechanisms that control them in health and disease. Research projects range from molecular interactions, protein folding, and membrane biophysics to development and function of organ systems and whole animals. Fundamental research, using cutting-edge technologies, enables researchers at Cornell to make significant advances in broad scientific disciplines such as cell and developmental biology, genetics and genomics, neurobiology, pharmacology, and physiology.

Translational Medicine

Translational medicine seeks to leverage basic science discovery for the development of new therapies that will improve the health of animals and humans. Basic scientists and clinicians partner in drug and biomarker discovery, stem cell and regenerative medicine, and development of imaging technology to tackle problems in reproductive biology, infectious disease, cancer, cardiovascular disease, and other clinically relevant areas.

Zoology and Wildlife Conservation

Integrates two broad fields of biology: animal biology and conservation biology. Opportunities exist for study and research in comparative and functional anatomy, developmental biology, and comparative and experimental embryology. The survival of threatened and endangered species requires innovative and integrative ideas and approaches to wildlife conservation, and our faculty are those innovators – conservation studies focus on individual animals, species, and ecosystems.

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 107

Program Requirements

- Minimum semesters to degree: 8

Graduate School Milestones

- Responsible Conduct of Research Training: Required
- Open Researcher and Contributor ID (ORCID): Required
- Student Progress Reviews (SPR) begin: First Year
- Examination for admission to candidacy (A Exam): before beginning their seventh semester of registration in the Ph.D. Program, typically by Fall of 3rd year
- Defense of Dissertation (B Exam): Spring of 7th year, average time to degree is 5.4 years

Field Specific Milestones

- Annual Individual Development Plan (IDP)
- Teaching experience in 2nd or 3rd year

Course Requirements

- BIOAP 6100 By Scientific Design: Skill Building for a Career in the Life Sciences (Fall 1st year)
- BIOAP 7100 By Scientific Design: Skill Building for a Career in the Life Sciences II (Spring 1st year)
- VTBMS 7200 Biomedical and Biological Sciences Seminar Work-in-Progress (WIP) for 4 years with satisfactory attendance and completion of evaluations
- Attendance at 8 seminars per semester (e.g. BBS3, M&I, CVG, stem cell, etc.).
- You should track your seminar attendance for use in your annual Student Progress Review (SPR)

- Ethics, which includes both BIOMG 7510 AND annual RCR training (BIOMG 7510 is offered in the spring and must be taken in year 2 or 3)

Learning Outcomes

A candidate for a PhD degree in the BBS Graduate Program is expected to demonstrate mastery of knowledge in the field, and to contribute significant, original research to our understanding of biology within their sub-discipline. In so doing, the candidate will have demonstrated the following upon completion of the program:

- Made an original and substantial contribution to the field.
- Demonstrated in-depth knowledge of one area of expertise.
- Demonstrated a broad knowledge of theory and research across several sub-disciplines in the field.
- Learned and followed ethical guidelines for working in the field.
- Written and spoken effectively to professional audiences about issues in the field.