

BIOLOGY, PHD

The Biology, PhD is offered through the Cell, Molecular, Developmental Biology, and Biophysics (CMDDB) (<https://cmdb.jhu.edu/>) program that includes faculty from multiple departments on the Homewood Campus. A program of study leading to the Ph.D. degree is open to students who are candidates for, or who already have, the bachelor's or master's degree in the biological or physical sciences. To be admitted, the applicant should have had either a thorough training in the fundamentals of biology and both organic chemistry and general physics, or a broad training in the physical sciences and mathematics. Special attention is given to the applicant's quality of scholarship and their promise as an investigator.

Teaching Opportunities

Since most biology Ph.D.'s will teach at some time during their careers, teaching experience is regarded as an important part of the graduate program, and graduate students are required to teach during their program. More details are available in the handbook.

Facilities

The lecture rooms, teaching laboratories, and research facilities of the Biology Research Complex (consisting of Seeley G. Mudd Hall and Undergraduate Teaching Laboratories) offer a thoroughly modern research facility for molecular biology.

Program Requirements

In addition to the general university requirements for an advanced degree (see Academic Information for Graduate Students (<https://e-catalogue.jhu.edu/arts-sciences/full-time-residential-programs/graduate-policies/academic-policies/>)), doctoral candidates must meet the following departmental requirements:

- Nine core courses and four 600- and 700-level electives.
- Four, 8-week long research rotations in the labs of CMDDB training faculty (<https://cmdb.jhu.edu/people/>) (AS.020.823 - AS.020.826).
- At least one year of laboratory teaching during the period of graduate residence.
- A high level of achievement in a comprehensive written proposal and oral examination covering proficiency in the field of the student's research interest and various areas of biology and related fields.
- A dissertation based on a program of independent research, a public seminar followed by an oral examination by the thesis committee.

All graduate students are required to complete the core courses and research rotations during the first year. In addition, students are required to complete four elective courses before graduation chosen from the list below of 600-level electives and 700-level seminars offered each semester. At least two out of the four courses must be 600-level.

Code	Title	Credits
Core Courses, Fall Semester		
AS.020.601	Current Research in Bioscience	1
AS.020.607	Quantitative Biology Bootcamp	3
AS.020.617	Quantitative Biology Lab 1	3
AS.020.686	Advanced Cell Biology	3
AS.020.668	Advanced Genetics and Molecular Biology	3
AS.020.699	CMDDB Responsible Conduct in Research	1
AS.020.823	Introduction to Biology Research	5

AS.020.824	Introduction to Biology Research	5
Core Courses, Spring Semester		
AS.020.674	Quantitative Biology and Biophysics	4
AS.020.637	Genomes & Development	3
AS.020.618	Quantitative Biology Lab II	3
AS.020.825	Introduction to Research	5
AS.020.826	Introduction to Biology Research	5