BIOPHYSICS, PHD - PROGRAM IN MOLECULAR BIOPHYSICS

The Program in Molecular and Biophysics (PMB), which began in 1990, brings together Johns Hopkins faculty at the Homewood and Medical School campuses. Its goal is to prepare students to deal with interdisciplinary problems in molecular biophysics and structural biology. For more information, see PMB Web page at pmb.jhu.edu (http://pmb.jhu.edu).

Admission Requirements

The annual application deadline is December 1.

All applicants must have a B.S. or a B.A. degree. Applications from students in any branch of science are welcome; however, we are particularly eager to attract applicants with undergraduate majors in physics, chemistry, mathematics, or relevant areas of engineering. There are no required undergraduate courses. Instead, applications are examined holistically for general strength of scientific background. The Graduate Record Examination, including a subject test, is no longer required for application or admission, but can be included if the applicant chooses.

Please use the Johns Hopkins University online application, selecting biophysics under the School of Arts & Sciences. Supplementary materials (letters of recommendation, optional GRE scores, statement, etc.) should be submitted along with the main application using the Johns Hopkins Arts & Sciences SLATE admissions portal.

Program Requirements

Programs are developed individually for each student, and due account is taken of previous training.

The following courses are required:

Code	Title	Credits
AS.250.610	Savvy Science Seminars	
AS.250.620	(Optical Spectroscopy)	
AS.250.621	X-ray diffraction	
AS.250.622	Statistics and Data Analysis	
AS.250.623	Macromolecular Simulations Module	
AS.250.624	NMR Spectroscopy	
AS.250.625	Single Molecule Measurements	
AS.250.649	Introduction to Computing in Biology	
AS.250.685	Proteins & Nucleic Acids	
AS.250.689	Physical Chemistry of Biological Macromolecules	
ME.100.715	Proteins and Nucleic Acids II (At the School of Medicine)	

Students must demonstrate strength in the following four areas: biological sciences, chemistry, mathematics, and physics. Typically, incoming students already have strength in at least two of these areas from undergraduate training. Deficiencies will be remedied through additional course work or self-study. Students must pass a proficiency exam in biological sciences at the end of their first year. In the mathematics and physics areas, students will be required to have knowledge of calculus through multivariable calculus, and one year of calculus-based physics, respectively. In the chemistry area, students are required to have basic chemistry, organic chemistry, and physical chemistry. In biological sciences, students are required to have knowledge of biochemistry and cell and molecular biology.

Additional academic requirements include completion of three 12-week laboratory rotations and passing the Graduate Board Oral Preliminary Examination, to be given near the end of the second year. Responsible Conduct of Research instruction is required throughout the duration of graduate studies. Students are also required to have several thesis reviews, including a presentation in the third year that is open to the public.

Completion of an original investigation and presentation of a dissertation are required. The dissertation must be accepted by the program and be considered worthy of publication by the referees. Students must then pass an oral examination on their dissertation and related topics.