

BIOPHYSICS (BIPH)

Graduate Degree Program
College: Computer, Mathematical, and Natural Sciences

Abstract

The Biophysics Program in the Institute for Physical Science and Technology offers Ph.D. degrees in Biophysics. It is affiliated with the College of Computer, Mathematical and Natural Sciences, and the College of Engineering. Doctoral degrees are offered.

The Maryland Biophysics Program aims to train graduate students in the use of theoretical, computational, and experimental methods to gain quantitative insights into biological systems. The post genomic era is bringing tools for unprecedented characterization and control of living systems. To fully harness these tools for quantitative insights in biology, biomedicine, and bioengineering requires expertise from a number of disciplines. Thus our program includes faculty from Chemistry, Physics, Biology, Materials Science and Bioengineering. The Biophysics Program is open to students with undergraduate degrees in chemistry, physics or biology as well as students with majors in mathematics, computational science or engineering. Because student backgrounds are diverse, we tailor the curriculum to suit the needs of the individual.

Research areas include Membranes and channels, Theory of molecular machines and motors, Cell mechanics, Motility and the cytoskeleton, Theoretical studies of protein and RNA folding and aggregation, Single molecule biophysics, Theory of hydrophobic and electrostatic interactions Scattering Techniques in RNA and Polymers Protein Structure, Nonlinear dynamics and biophysics of biological regulation, Mechanisms of allostery and protein assembly. The core courses that include but are not limited to Statistical Mechanics, Chemical Thermodynamics, Biophysical Chemistry, Membrane Biophysics and Cell Biology, constitute the basis for further specialization.

Financial Assistance

TAships, RAships, Fellowships, arrangements for support from the National Institutes of Health.

Contact

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Courses: BCHM (<https://academiccatalog.umd.edu/graduate/courses/bchm/>) BIOE (<https://academiccatalog.umd.edu/graduate/courses/bioe/>) BIOL (<https://academiccatalog.umd.edu/graduate/courses/biol/>) BIPH (<https://academiccatalog.umd.edu/graduate/courses/biph/>) BSCI (<https://academiccatalog.umd.edu/graduate/courses/bsci/>) CHEM (<https://academiccatalog.umd.edu/graduate/courses/chem/>) ENMA (<https://academiccatalog.umd.edu/graduate/courses/enma/>) PHYS (<https://academiccatalog.umd.edu/graduate/courses/phys/>)

Relationships: Chemical Physics (CHPH) (<https://academiccatalog.umd.edu/graduate/programs/chemical-physics-chph/>), Chemistry (CHEM) (<https://academiccatalog.umd.edu/graduate/programs/chemistry-chem/>), Materials Science and Engineering (ENMA) (<https://academiccatalog.umd.edu/graduate/programs/materials-science-engineering-enma/>), Physics (PHYS) (<https://academiccatalog.umd.edu/graduate/programs/physics-phys/>)

Admissions

General Requirements

- Statement of Purpose: In addition to the questions requested by the Graduate School, applicants should include content, both backwards and forwards looking, about their interests in the University of Maryland's Biophysics Ph.D. program
- Transcript(s)
- TOEFL/IELTS/PTE (international graduate students (<https://gradschool.umd.edu/admissions/english-language-proficiency-requirements/>))

Program-Specific Requirements

- Letters of Recommendation (3)
- Graduate Record Examination (GRE)
- CV/Resume
- Publications/Presentations

Students dedicated to a career in experimental or theoretical biophysics are sought.

For more admissions information or to apply to the program, please visit our Graduate School website: <https://gradschool.umd.edu/admissions> (<https://gradschool.umd.edu/admissions/>)

Application Deadlines

Type of Applicant	Fall Deadline
Domestic Applicants	
US Citizens and Permanent Residents	15 Jan
International Applicants	
F (student) or J (exchange visitor) visas; A,E,G,H,I and L visas and immigrants	15 Jan

Other Deadlines: Please visit the program website at <http://www.marylandbiophysics.umd.edu>

Requirements

- Biophysics, Doctor of Philosophy (Ph.D.) (<https://academiccatalog.umd.edu/graduate/programs/biophysics-biph/biophysics-phd/>)
- Biophysics, Master of Science (M.S.) (<https://academiccatalog.umd.edu/graduate/programs/biophysics-biph/biophysics-ms/>)

Facilities and Special Resources

Eleven of the eighteen faculty run experimental laboratories. Multiple experiments are conducted at the same time with graduate students working on the experiments. A Biophysics Seminar is run on the average of once a week, generally given by visiting scholars. For those students electing to take the Seminar for credit, one credit is offered, and these students must sign in each week. Faculty form three-person committees to mentor students, as mentioned above. Symposia consisting of about six nationally and internationally known scholars are conducted once a semester on various topics. These are well attended by students, postdocs, faculty and visitors from local institutions such as NIH and Johns Hopkins.