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. The online application is located at apra@umd.edu.

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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Email: snejjar@umd.edu
Website: http://www.marylandbiophysics.umd.edu

Courses: BCHM BIOE BIOL BIPH BSCI CHEM ENMA 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

Application Deadlines
Type of Applicant          Fall Deadline
Domestic Applicants
US Citizens and Permanent
Residents                  3 Jan
International Applicants
F (student) or J (exchange visitor) visas, A,E,G,H,I and L visas and immigrants 3 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.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Last Name</th>
<th>First/Middle Name</th>
<th>Graduate Faculty Status</th>
<th>Academic Credentials</th>
<th>Positions</th>
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<tbody>
<tr>
<td>Aranda-Espinoza</td>
<td>Jose Helim</td>
<td>Full Member</td>
<td>B.S., University of Zacatecas, Mexico, 1990; M.S., University of San Luis Potosi, Mexico, 1993; Ph.D., University of San Luis Potosi, Mexico 1998.</td>
<td>Associate Chair, Bioengineering Associate Professor, Biophysics Associate Professor, Materials Science and Engineering Professor, Chemical Physics Professor</td>
<td>Colombini, Marco, Full Member</td>
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<tr>
<td>Beckett</td>
<td>Dorothy</td>
<td>Full Member</td>
<td>B.A., Barnard College, 1980; Ph.D., University of Illinois Urbana/Champaign, 1986. Ph.D., something</td>
<td>Professor, Biochemistry Professor, Biophysics Professor, Chemistry Professor</td>
<td>Dayie, Kwaku, Full Member</td>
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<td>Briber</td>
<td>Robert M.</td>
<td>Full Member</td>
<td>B.S., Cornell University, 1979; M.S., University of Massachusetts, Amherst, 1981; Ph.D., 1984.</td>
<td>Professor, Materials Science and Engineering Professor, Biophysics Professor, Chemical Physics Professor</td>
<td>Butts, Daniel, Full Member</td>
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<td></td>
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<td></td>
<td>B.S., Oberlin College, 1994; Ph.D., University of California Berkeley, 2000.</td>
<td>Professor, Biophysics Associate Professor, Applied Mathematics &amp; Statistics, and Scientific Computation Associate Professor, Neurosciences and Cognitive Science Associate Professor, Biological Sciences Associate Professor, Chemistry Professor, Physical Sciences Professor, Biophysics Associate Professor, Biochemistry Associate Professor, Biophysics Associate Professor, Biophysics Professor, Biochemistry College Professor, Chemical Physics Professor, Chemistry Professor, Associate Professor, Applied Mathematics &amp; Statistics, and Scientific Computation Associate Professor, Physics Associate Professor, Biophysics</td>
<td>Feijo, Jose, Full Member</td>
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<td>M.S., University of Kazan, 1978; Ph.D., University of Kazan, 1985.</td>
<td>Fushman, David, Full Member</td>
<td>Girvan, Michelle, Full Member</td>
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<td></td>
<td>B.S., Massachusetts Institute of Technology, 1999; Ph.D., Cornell University, 2003; Ph.D., 2004.</td>
<td>Professor, Biophysics Professor, Chemical Physics Professor, Applied Mathematics &amp; Statistics, and Scientific Computation Associate Professor, Physics Associate Professor, Biophysics</td>
<td></td>
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</table>
Kanold  Patrick  Full Member  Ph.D., Johns Hopkins University, 1999.  Professor, Neurosciences and Cognitive Science Professor, Biological Sciences Professor, Biophysics Affiliate Associate Professor, Bioengineering Associate Professor, Biophysics

Losert  Wolfgang  Full Member  M.S., University of Munich, 1995; Ph.D., City College of New York, 1998  Professor, Biophysics Professor, Biophysics Associate Professor, Chemical Physics Assistant Professor, Bioengineering Assistant Professor, Biophysics

Matysiak  Silvina  Full Member  Ph.D., Rice University, 2007  Associate Professor, Biophysics Associate Professor, Chemical Engineering Graduate Director, Chemical Engineering

Papoian  Garegin  Full Member  B.S., 1994, Russian Academy of Science; Ph.D., 1999, Cornell University  Director, Chemical Physics Associate Professor, Biophysics Associate Professor, Chemistry Assistant Professor, Biophysics

Klauda  Jeffery  Full Member  Ph.D., University of Delaware  Associate Professor, Biophysics Associate Professor, Chemical Engineering Graduate Director, Chemical Engineering

Scarcelli  Giuliano  Full Member  Assistant Professor, Biophysics

Speer  Colenso  Full Member  Ph.D., University of California, Davis, 2010  Assistant Professor, Biological Sciences Assistant Professor, Biophysics Assistant Professor, Biophysics Director, Biophysics Professor, Biological Sciences

Stroka  Kimberly  Full Member  Assistant Professor, Biophysics

Lorimer  George H.  Full Member  B.S., University of St. Andrews, 1965; M.S., University of Illinois-Chicago, 1968; Ph.D., Michigan State University, 1972  University Professor, Biochemistry Distinguished University Professor, Biophysics Distinguished University Professor, Chemical Physics Distinguished University Professor, Chemistry

Sukharev  Sergei I.  Full Member  M.S., Russia, 1980; Ph.D., M.V. Lomonosov Moscow State University, 1987.  Director, Biophysics Associate Professor, Biophysics

Thirumalai  Devarajan  Adjunct Member  M.S., Indian Institute of Technology-Kanpur, 1977; Ph.D., University of Minnesota-Twin Cities, 1982.  Adjunct Professor, Biophysics
Tiwary Pratyush Full Member Ph.D., Caltech, 2012 Assistant Professor; Biochemistry Assistant Professor; Biophysics Assistant Professor; Chemistry

Upadhyaya Arpita Full Member B.E. & M.S., Birla Institute of Technology and Science, India, 1994; Ph.D., University of Notre Dame, 2000; Associate Professor; Physics Assistant Professor; Biophysics Assistant Professor; Chemical Physics

Weeks John D. Full Member B.A., Harvard University, 1965; Ph.D., University of Chicago, 1969. Distinguished University Professor; Biophysics Distinguished University Professor; Chemical Physics Distinguished University Professor; Chemistry Affiliate Professor; Physics