Biological Physics

Biological Physics is a discipline that investigates the physical problems presented by biological systems, applying physics principles and techniques to gain new insights into the processes of life. This interdisciplinary major, administered by the Physics Department, is intended to prepare students to contribute to or pursue graduate study in areas of the life sciences and health professions that are increasingly technical, including cell biology, neuroscience, and medical research.

Major Requirements

- BIO 121 Foundations: Cell & Molecular Biology
- BIO 131 Foundations: Organismal Biology
- CHM 170 Organic Chemistry: Reactions & Synthesis
- BCH 333 Biochemistry
- PHY 101/107 General Physics I
- PHY 108 General Physics II
- PHY 209 Modern Physics
- PHY 209L Modern Physics Lab
- PHY 250 Mathematical Methods
- PHY 259L Computational Physics Lab
- PHY 327 Biological Physics
- PHY 441/442 Senior Research
- MTH 151 Calculus I
- MTH 152 Calculus II

one of:
- PHY 317 Thermal Physics
- CHM 360 Thermodynamics and Kinetics

one of:
- PHY 313 Electricity and Magnetism
- PHY 322 Electronics (with laboratory)
- PHY 331 Quantum Mechanics

and three electives from the following:
- BIO 201 Genetics
- BIO 212 Cell Biology
- BIO 311 Molecular Biology
- BIO 314 Immunology
- NSC 300 Experimental Neuroscience

Research and Internships

- The intense, interdisciplinary laboratory curriculum is designed to prepare students to participate in meaningful research early in their studies.
- As part of the curriculum, students complete a two-semester independent research project in which they work with a faculty member to investigate a topic of relevant to their scientific or career interests.
- Transferable skills propel students to take advantage of international research internships in cutting-edge scientific and engineering fields.

Careers

- Careers in medicine, including veterinary medicine (DVM) and combined M.D./Ph.D. programs
- Research at the intersections of biology, chemistry, physics, medicine, and engineering