Biophysics
Bachelor of Science
2017-2018

Nature of Work:
The Biophysics major has significant components of mathematics and physical science that provide a strong background for careers in biotechnology. Biophysicists use their knowledge of living systems to develop mathematical models that can simulate and predict the actual behavior of the system. Their expertise in instrumentation gives them the ability to obtain quantitative data on the operation of living organisms and to determine the structure of biomolecules. A biophysics background is important for positions in radiation and medical physics. Radiation physics is concerned with the interaction of all types of radiation (such as microwaves, low frequency power lines, gamma rays, neutrons, etc.) with living organisms. A biophysics major also provides a strong foundation for a career as a physician.

Professional Training:
Graduates with a four-year degree usually start out as technicians and eventually advance to independent research and leadership as they gain experience and competence in the field. With graduate training, one may specialize in fields such as molecular biology, neuroscience, and physiology.

Denominational Opportunities:
Currently, medical physicist positions are available in some of the larger hospitals. Some college-level teaching positions also provide employment opportunities.

Job Outlook:
As new technology continues to be discovered, the BLS projects the employment of biophysicists to increase 8 percent from 2014 through 2024, which is about “as fast as the average for all occupations.” (See www.bls.gov)

Earnings:
The Bureau of Labor Statistics reports the mean annual wage for biophysicists employed in “[m]anagement, scientific, and technical consulting services” as $100,800 in May 2016. Biophysicists, as a whole, earned a median annual wage of $82,180. (See www.bls.gov)
The chart below details one suggested path a student may take to complete a bachelor’s degree in Biophysics. **Classes that are offered with multiple sections are listed in each quarter they are available.** Cognates, general studies courses, and electives should be taken to complete 192 credit hours to complete a Bachelor of Science in Biophysics.  

See the Undergraduate Bulletin for complete requirements.

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Biophysics majors are expected to spend the summer between their Junior and Senior years at Rosario Marine Station and are required to take two 5 credit biology elective courses. Biology/Physics electives must be upper division, chosen in consultation with biology/physics advisers.

**Before graduation, all students must take an exit exam.**

Total Credits Required: 192 Credits

Cognates:

**Freshman**
- CPTR 141 – Fundamentals of Programming

**Sophomore**
- MATH 315 OR BIOL 250 – Probability & Statistics OR Biostatistics
- CHEM 141, 142, 143/144, 145, 146 – General Chemistry

**Junior**
- CHEM 321, 322/324, 325 – Organic Chemistry

**Senior**
- CHEM 431, 432 – Foundations of Biochemistry

English Requirements:

**Freshman**
- ENGL 121 & 122 – College Writing

**Sophomore**
- ENGL 223 – Research Writing

Math Requirements:

**Freshman**
- MATH 181,182,183 – Calculus I, II, & III

**Sophomore**
- MATH 283 – Calculus IV

**Junior**
- MATH 312 – Ordinary Differential Equations

Colloquium Requirements:

Biophysics majors are required to attend a colloquium at least once every quarter of their Junior and Senior years to complete their degree requirements.

General Requirements:

- Health & P.E. 2 cr.
- History 8 cr.
- Social Science 4 cr.
- Humanities 12 cr.
- Language Arts 12 cr.
- Mathematics 4 cr.
- Natural Science 8 cr.
- Religion & Theology 18 cr.

Notes:

+ Classes offered even years
- Classes offered odd years