



MAJOR CHOSEN: BIOPHYSICS

I. A BRIEF DESCRIPTION OF THE MAJOR

Biophysics is an interdisciplinary combination of mathematics, physics, biology, and chemistry directed towards study of how living organisms function. Biophysicists work in industry, research, universities, medical centers, and in the government. The Biophysics degree includes the normal prerequisites for a post-baccalaureate biophysics program. This program prescribes a 65-hour major combination of physics (24 hours), biology (17 hours), and chemistry (24 hours). As with all programs at Bob Jones University, this major is founded on a Christian, non-evolutionary worldview. Note that traditional degree programs are available in math, physics, biology, and chemistry for students who are not committed to this cross-disciplinary field.

II. COURSE HIGHLIGHTS

Here are some of the courses you will especially enjoy:

General Biology Here you will study all the core disciplines of biology including introductory cell and molecular biology, genetics, developmental biology, ecology, taxonomy, and a Christian philosophy of science.

General Physics In this class you will explore the major topics of classical physics including mechanics, thermodynamics, waves, optics, electricity and magnetism. This course lays the foundation for later courses in modern physics and quantum mechanics.

General Chemistry This course is the foundation for all of the branches of chemistry, including organic chemistry and biochemistry which you will take later.

Research in Biophysics In your senior year you will conduct an interdisciplinary research project in cooperation with a member of the physics faculty and a member of the biology faculty. Current research interests include biological fuel cells and bioelectronics.

III. A TYPICAL YEARLY COURSE SEQUENCE

This is a suggested program of study for you. Other refinements to your program can be made when you consult your faculty advisor at the time of your enrollment.

You will notice that some courses are listed as electives. These electives give you the opportunity to tailor your program by selecting courses you would like to take for your own personal enjoyment.



Freshman

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|---------------------------------|----------|
| Orientation | 1 |
| General Biology I | 4 |
| Transcendental Functions* | 3 |
| History of Civilization | 3 |
| Old Testament Messages | 1 |
| English Composition..... | <u>3</u> |
| Total | 15 |

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|------------------------------|----------|
| Orientation | 1 |
| General Biology II..... | 4 |
| Calculus I | 3 |
| Fundamentals of Speech..... | 3 |
| New Testament Messages | 1 |
| English Composition..... | 3 |
| History of Civilization..... | <u>3</u> |
| Total | 18 |

Sophomore

| | |
|-------------------------------|----------|
| General Chemistry I | 4 |
| General Physics I | 4 |
| Calculus II..... | 3 |
| Sophomore Bible Elective..... | 1 |
| English Literature..... | 3 |
| General Psychology | <u>3</u> |
| Total | 18 |

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|--------------------------------|----------|
| General Chemistry II | 4 |
| General Physics II | 5 |
| Calculus III | 3 |
| Sophomore Bible Elective | 1 |
| Social Studies Elective | <u>3</u> |
| Total | 16 |

Junior

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|---|----------|
| Essentials of Cell Biology..... | 4 |
| Organic Chemistry I | 4 |
| Thermodynamics / Statistical Mechanics..... | 3 |
| Elementary Statistics..... | 3 |
| Bible Doctrines | <u>3</u> |
| Total | 17 |

| | |
|------------------------------|----------|
| Organic Chemistry II | 4 |
| Modern Physics | 3 |
| Calculus IV | 3 |
| Christian Family Forum | 1 |
| Bible Doctrines | 3 |
| Psychology Elective | <u>3</u> |
| Total | 17 |

Senior

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|---|----------|
| Genetics..... | 4 |
| Biochemistry I..... | 4 |
| Electricity & Magnetism I | 3 |
| Introduction to Quantum Mechanics I | 3 |
| Research in Biophysics | 1 |
| Upper-Level Bible Elective..... | <u>2</u> |
| Total | 17 |

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|--|----------|
| Biochemistry II | 4 |
| Electricity & Magnetism II | 3 |
| Science: Impact on Society | 3 |
| Oral Communication for the Professions | 3 |
| Upper-Level Bible Elective..... | <u>2</u> |
| Total | 15 |

* Students with a math ACT score below 26 will be required to take a math placement test and may be required to take remedial math classes.

IV. FACILITIES, EQUIPMENT, AND OPPORTUNITIES

Science Labs The resources of the physics, biology, and chemistry departments are all available to Biophysics majors, including our three chemistry labs, four biology labs, and two physics labs. Computers are used extensively for data collection and analysis in all three departments.

You will initiate and complete a research project in biophysics during your senior year in cooperation with both a physics faculty member and a biology faculty member. Current research interests include biological fuel cells and bioelectronics.



Completely equipped computer laboratories are available for your use including Windows XP, Macintosh, and LINUX machines. There are many academic computer labs conveniently located all over campus including over one hundred computers in the science building. All students receive a campus email account and high-speed filtered Internet access.

Chapel is a central feature of Bob Jones University. This 35-minute service is held every morning, Monday through Thursday. These services are a source of great inspiration to students. Four days a week the Chapel message is brought by the President or by selected speakers. Each Friday the Chapel period is devoted to the meetings of various literary societies.

All students have opportunity to participate in the University's athletic program. Through a well-integrated program of intramural athletic competition, a very high percentage of student participation is possible. You will have the opportunity to compete in a wide variety of both team and individual sports including soccer, speedball, basketball, softball, track, volleyball, tennis, swimming, badminton, judo, table tennis, racquetball, archery, wrestling, and indoor soccer.

Davis Field House, with over 87,000 square feet and seating for 3,000 people, contains 4 full-sized courts; auxiliary courts; indoor and outdoor tracks; swimming pool; café; and a fitness center with fully-equipped exercise room, aerobic room, sauna, and whirlpool.

The Mack Library, with 90,000 square feet of floor space and seating for over 1,300 students, gives you access to 294,000 volumes, 1,100 current periodical subscriptions, and more than 17,000 music, speech, and language recordings. Mack Library offers access to over 65 electronic databases on the library web site. An interlibrary loan program is available through OCLC, a national database, for books not held in our library. Other prominent features include the Jerusalem Chamber, a replica of the room in Westminster Abbey in London in which work was done on the 1611 King James Bible, and the University Archives Room which displays materials about the Founder and history of the University.

If you are planning to live on campus, you will be glad to know that all of our residence halls are air-conditioned, have wall-to-wall carpeting, and have a phone in each room. You will be able to make long-distance calls directly from your room and have them automatically placed on your school bill. Computer network connectivity is available in all residence halls, as well.

All of our classrooms are air-conditioned, and there are awnings over the sidewalks to keep you dry when it is raining. The Dining Common serves 8,500 delicious meals a day, and the Snack Shop and Bookstore in the Student Center carry just about anything you'll need.

You will find the finest Christian young people in the country are your fellow students, and without trying too hard, you may end up making a life-long friend!

V. ABOUT THE FACULTY

The physics, biology, and chemistry faculty includes 11 members with Ph.D.'s in their respective fields, many with real-world research experience. Several are actively involved in undergraduate research projects. All are creationists, making our faculty one of the largest assemblies of Ph.D. creationists in the world.



VI. CAREER OPPORTUNITIES AND PLACEMENT

Most graduates of this program will pursue graduate school in the area of biophysics, since relatively few entry-level jobs are available for B.S. degree holders. The field of biophysics is a growth area, with job opportunities exceeding the available supply of graduates. Visit the Biophysical Society website at www.biophysics.org for more career information. Note that this degree includes components of physics, biology, and chemistry but does not contain a full degree in any one of these fields. Students wanting a broader range of career options should consider one of these degrees. This major is for students committed to an interdisciplinary career in biophysics.

Medical school is a possibility, particularly for students interested in an M.D./Ph.D. program. Compare this major with the Premed degree and consult with our faculty for more detailed information.

Graduate study in bioengineering is also a possibility, although this program focuses more on the molecular biology level.

VII. BJU: AN AFFORDABLE EDUCATION

Enclosed is an expense sheet detailing the cost of attending Bob Jones University. When you compare our charges to those of other private colleges, we think you will be pleasantly surprised. We believe we offer a student more value for his dollar than anyone else in America. And to help you see how affordable "the Opportunity Place" can be for you, we have enclosed a financial aid brochure that you can use to evaluate your own situation. Your Admissions Counselor or the Director of Student Financial Aid would be happy to discuss this with you if you have any questions.

HOW TO TAKE THE NEXT STEP . . .

If you can see yourself in the career described in the profile, then a great opportunity awaits you at Bob Jones University. It is the opportunity for the premier Christian college experience in all the world. It is the opportunity for learning, for fun, and for developing new friendships. It is the opportunity to prepare for a lifetime of service for the Lord . . .

The Opportunity Place . . . God's Special Place for You.

For further information about all of the science options available at BJU, call your admissions counselor to arrange a phone call with one of the department's professors. Professors also welcome email questions. More information is also available on the department web page at www.bju.edu.