



MAJOR CHOSEN: PHYSICS

I. A BRIEF DESCRIPTION OF THE MAJOR

The Physics major introduces you to a world of experimental, observational, and theoretical studies of the physical nature of God's universe. Courses in general physics, optics, thermodynamics, electrodynamics, theoretical mechanics, astronomy, modern physics and quantum mechanics provide the student with a basic understanding of the nature of the physical universe. A Christian worldview is stressed. This major provides the necessary background to work in industry as a physicist or physical scientist, while opening the door of opportunity for graduate work in all areas of physics and related disciplines including astrophysics, biophysics, medical physics, atmospheric physics, geophysics, nuclear physics, meteorology, and astronomy. Students collaborate with Ph.D. faculty in on-going research projects, with view toward publication of the results. Involvement in summer research opportunities is encouraged. An astrophysics option is available including two semesters of astronomy and involvement in research related to binary stars.

II. COURSE HIGHLIGHTS

Here are some of the courses you will especially enjoy:

General Physics This core course covers all the standard topics of physics from kinematics and dynamics to thermodynamics, electricity and magnetism, waves and optics, and an introduction to modern physics. In the laboratory, you will learn how to collect precision data and perform real-time data interpretation with computers.

Modern Physics This course investigates the elementary structure of matter, Einstein's Special Theory of Relativity, the nature of radioactivity, and the issues involved in estimating the age of the earth.

Optics Textbook and laboratory combine to provide both theoretical understanding and practical experience with optical systems.



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

Orientation	1	Orientation	1
General Chemistry I	4	General Chemistry II	4
Physics Survey	1	Calculus I	3
Transcendental Functions*	3	New Testament Messages	1
History of Civilization	3	Fundamentals of Speech	3
Old Testament Messages	1	English Composition.....	<u>3</u>
English Composition.....	<u>3</u>	Total	15
Total	16		

Sophomore

General Physics I	4	General Physics II	5
Calculus II	3	Elementary Linear Algebra	3
History of Civilization	3	Calculus III	3
Sophomore Bible Elective	1	Sophomore Bible Elective	1
English Literature.....	3	As 251 Stellar and Galactic Astronomy or	
As 250 Solar System Astronomy or		Ele 206 Basic Circuit Analysis II.....	<u>3</u>
Ele 205 Basic Circuit Analysis I.....	<u>3</u>	Total	15
Total	17		

Junior

Theoretical & Applied Mechanics I.....	3	Theoretical & Applied Mechanics II	3
Thermodynamics/ Statistical Mechanics.....	3	Optics	3
Calculus IV	3	Modern Physics	3
History & Philosophy of Science.....	3	Differential Equations	3
Bible Doctrines	3	Christian Family Forum	1
As 303 Observational Astronomy or		Bible Doctrines	<u>3</u>
Phy 303 Experimental Physics.....	<u>2</u>	Total	16
Total	17		

Senior

Electricity & Magnetism I	3	X-ray Diffraction Analysis	3
Introduction to Quantum Mechanics I	3	Electricity & Magnetism II	3
Oral Communication for the Professions	3	Introduction to Quantum Mechanics II	3
General Psychology	3	As 490 Research in Astronomy or	
Social Studies Elective.....	3	Phy 490 Research in Physics.....	1
Upper-Level Bible Elective.....	<u>2</u>	Psychology Elective	3
Total	17	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

A completely equipped physics laboratory is available for analysis of experimental data. Each lab station provides an up-to-date notebook PC connected to a USB data acquisition system for collecting and analyzing data in "real" time, while it is actually being observed. Wireless networking eliminates the clutter of network cables from the physics work areas.

An X-ray diffraction system and electron microscope provide advanced laboratory experience.

You are required to complete a research project in some area of physics or astronomy during your senior year. Current research projects involve study of binary stars and modeling of radioactive decay processes.

Our on-campus observatory and planetarium provide valuable experience for students pursuing the astrophysics option.

Completely equipped computer laboratories are available for your use. There are many academic computer labs conveniently located all over campus, including a power-user lab for Computer Science, Engineering, and Physics students. This lab is equipped with dual-monitor 1 GHz Pentium multimedia machines running Windows XP, in addition to Macintosh and LINUX machines. All students receive an email address and have 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

Our physics professors have extensive theoretical and practical backgrounds in celestial mechanics, astrophysics, observational astronomy, classical and modern physics, computational and theoretical physics and creation science. The engineering faculty teach some of the courses. All have Ph.D. degrees in their area of specialty. Several are involved in on-going research efforts.

VI. CAREER OPPORTUNITIES AND PLACEMENT

Most physics majors pursue graduate studies, and our students have been accepted at numerous universities around the country. Career paths open to physics majors are very diverse, including the sampling listed below. Visit the American Physical Society at www.aps.org for more information about careers in physics.

Astrophysics

Biophysics

Nuclear and particle physics

Solid state physics

Astronomy

Optics

Engineering

Geophysics

Materials science

Meteorology

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 and engineering 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 about the Physics and Engineering Department is also available on the department web page at www.bju.edu.