

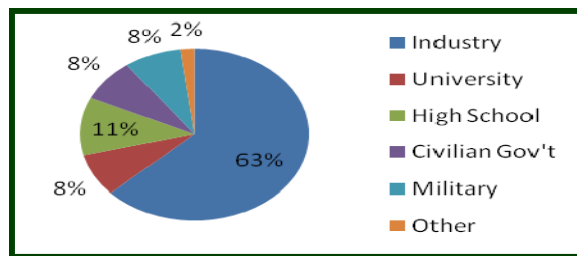
CAREER OPPORTUNITIES

Physics will give you a powerful and beautiful way to observe and understand the world around you. If you like science and mathematics, physics also offers challenging, exciting, and productive careers. As a career, physics covers many specialized fields from solid state physics, acoustics, astronomy, and astrophysics to medical physics, geophysics, microelectronics, and vacuum sciences. Physics also offers a variety of work activities- lab supervisor, researcher, technician, teacher, manager.

Physics opens doors to employment opportunities throughout the world in government, industry, schools, and private organizations. A major in physics also provides an excellent foundation for pursuing a graduate degree.

Other fields of science are heavily indebted to physics. For instance, the quantum theory is used by chemists to understand molecular bonding at a quantitative level. Civil and mechanical engineering uses classical mechanics at their core. Physicians routinely make use of x-ray, ultrasound, and nuclear magnetic resonance for imaging, as well as the radiation from isotopes or linear accelerators for treating cancers. More recently, Wall Street has even hired physicists to perform quantitative modeling of stock and bond trends. So you see, an undergraduate degree in physics may be the best training for pursuing advanced degrees in many of the sciences.

The Department of Physics and Physical Science at Marshall University would very much like to help you obtain the B.S. degree in physics.



FACULTY AND STAFF

Dr. Maria C. Babiuc-Hamilton, PhD

Dr. Richard Bady, EdD

Dr. James Brumfield, PhD

Dr. Huong Nguyen, PhD

Dr. Ralph E. Oberly, PhD

Dr. Nicola Orsini, PhD, Chairman

Dr. Thomas Wilson, PhD

Shannon McKinney, Laboratory Manager

Ms. Judy Clark, Secretary

Adjunct Faculty: Dr. Xiaojuan Fan, PhD, Dr. Howard L. Richards, PhD, Curtis Foltz, PhD, and Mr. David Adkins, MS

FOR MORE INFORMATION, PLEASE CONTACT:

Marshall University

College of Science

Department of Physics and Physical Sciences

One John Marshall Drive

Science Building, Room 251

Huntington, WV 25755

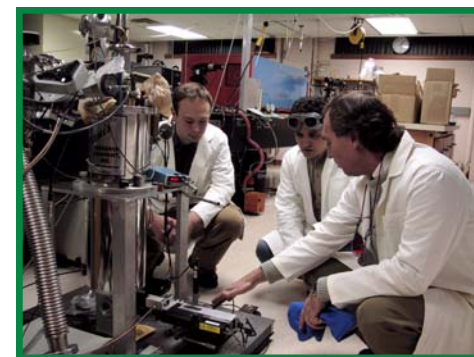
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PHYSICS & PHYSICAL SCIENCES

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PHYSICS

Physics, one of the basic sciences, deals with the nature of matter, space, and time. It is the foundation upon which engineering and all technology is built.

The Department of Physics and Physical Science offers coursework leading toward the B.S. degree in physics. A major in Physics not only provides students with a broad array of knowledge in the physical and natural sciences, but also in mathematics, humanities and social sciences.

The completion of the B.S. in physics prepares the graduate to enter graduate school in physics or engineering, medical school, or other professional programs, direct employment in government or industrial laboratories, and other technically related fields.

Among the course work options open to physics and other science majors are applied physics courses which emphasize applications of optics, electronics, and radiation to the medically related fields.

Additional related programs within the department lead to an A.B. degree with a specialization in physics and/or general science, and an M.S. degree in physical science.

The physics major working to complete the B.S. degree is required to complete:

- PHY 211, 202, 213, 204 or equivalent
- PHY 300, 302, 308, 320, 330, 442, 445 & 491 (capstone)
- Ten additional semester hours of 300-400 physics courses selected from the catalog including at least 4 semester hours of advanced laboratory courses (PHY 405, 415, 421, 463).
- MTH 229, 230, 231, 335

Majors in physics must demonstrate to the department faculty fundamental skills in utilizing computers, which include using software packages for data analysis & word processing, computer interfacing for data collection, and computer modeling. Students lacking these skills can fulfill this requirement by taking appropriate courses which have the approval of the department.

A **minor in Physics** may be earned by successfully completing the following courses with at least a C average: PHY 201 (or 211), 202, 203 (or 213), 204, and any two additional physics or physical science courses at the 300-400 level.

PROGRAMS OF STUDY

Undergraduate Program (B.S.)

Curricula are offered which are designed to prepare students for graduate work in physics, for positions in industrial or government laboratories, and for teaching physics and physical science in the secondary schools. These curricula lead to a Bachelor of Science degree.

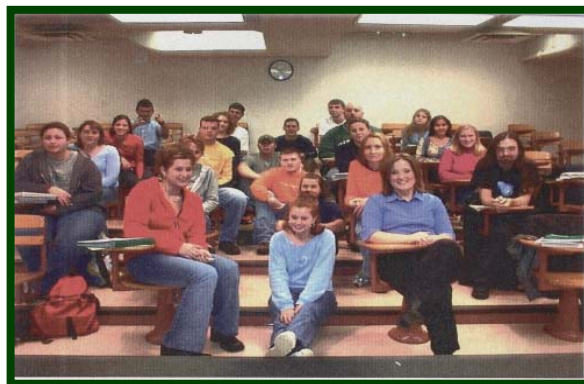
Graduate Program (M.S.)

A special graduate program in Physical Science leading to a Master of Science degree is available to anyone who wishes to take advanced training in the physical sciences with a major in the areas of physics, chemistry, or geology. An optional minor in education is available in this program.

In addition, some advanced graduate physics courses are available upon demand for students desiring an in-depth background in physics.

SCHOLARSHIPS

Various scholarships are available for students enrolled as Physics majors. Contact the department for details.



FACILITIES

The department has modern classrooms, equipped with computer-based projection systems, with access to T1-line bandwidth for internet access. The laboratories are equipped with computer based instrumentation for study of physics and physical sciences. Equipment is available for faculty and student Capstone research projects in X-rays, magnetic resonance and susceptibility, optics, analog and digital electronics, nuclear physics, atomic absorption spectroscopy, solid state materials development using CVD, electro-optic characterization, modern physics experiments, image processing, and photovoltaic characterization.

Research Laboratory Facilities

Materials Processing and Characterization Laboratories
Phonon Spectroscopy Laboratory
Image Processing Laboratory
Atomic Absorption Spectrophotometry Laboratory
Modern Physics Laboratory
Magnetic Resonance & Susceptibility Laboratory
Intelligent Transportation Systems Laboratory

Laboratory Instruction Facilities

General Physics Laboratory, Electronics Physics Laboratory, Optics Laboratory, Physical Sciences Laboratory, Modern Physics Laboratory