

# PHYSICS

The physics programs at West Chester University are designed to prepare you for a wide variety of career opportunities. More than most other majors, physics is a passport to a broad range of science, engineering, and education careers. Physics is used in nearly all industries that depend on people who rely on advanced knowledge and technical skills to solve complex problems. Because most physics graduates work in a team environment, they are also valued for their technical writing and communications skills, all of which are fostered in the physics programs at West Chester University. The rapidly developing job market produces new careers that use physics in novel and exciting ways. The physics programs can also solidly prepare you for continued study and research in graduate school.

## Career Opportunities

Most physics graduates work in the private sector as engineers and computer scientists. Many physics graduates also teach in secondary schools. Because of their strong and varied training, physics majors often manage technical projects, people, and budgets. They usually work in cross-disciplinary teams that might include engineers, materials scientists, chemists, computer specialists, mathematicians, and administrators. These individuals are brought together because of their unique perspectives and skills to help solve specific problems. A few examples of companies where our graduates have found employment include the following:

Advanced Television Technology Center  
Coca Cola  
E.I. DuPont  
IBM  
LNP Engineering Plastics  
MultiTech, Inc.  
Public and private secondary schools  
Siemens  
Tokyo Electron Limited

About a quarter of our graduates go on to advanced study in physics or engineering by attending graduate schools. Some of these have chosen employment in the private sector in corporate labs conducting long-term research. Others work in federally funded research and development centers or federal agencies with a scientific mission. Still others have gone on to academic positions at other universities. The following are a few of the graduate schools attended by students graduating from the physics programs at WCU:

Carnegie Mellon University

Massachusetts Institute of Technology  
The Pennsylvania State University  
Tufts University  
University of Alaska  
University of Connecticut  
University of Delaware  
University of Massachusetts  
University of Pennsylvania  
University of Wisconsin  
Virginia Polytechnic Institute and State University

## Undergraduate Degrees

**Bachelor of Science in Education – Physics.** This program provides a solid background in physics, mathematics, and related sciences for a teaching career at the secondary school level. As a graduate, you are certified to teach physics in the public and private schools of Pennsylvania.

**Bachelor of Science in Physics.** Designed to prepare you for careers in government or industry or for continued study in graduate school, this program includes a strong foundation in physics, mathematics, and chemistry, as well as incorporating courses that develop communication skills. A strong element of laboratory work is included at all levels that develop technical and analytical skills.

**Bachelor of Science in Physics (WCU)/Bachelor of Science in Engineering (PSU and Philadelphia University).** West Chester University, in cooperation with The Pennsylvania State University at University Park, as well as Philadelphia University, provides a dual-degree program in which, after three years at WCU and two at either cooperating university, you earn a B.S. in physics from West Chester University and a B.S. in engineering. Admission to either Penn State or Philadelphia University is contingent only on a recommendation from the Department of Physics and your having maintained the overall average required for the specific engineering major you choose to pursue. (If you are a transfer student, you are not eligible for the Penn State program. Transfer students are eligible for the Philadelphia University program only.) Contact the Department of Physics to learn which engineering majors are available at each affiliated university.

## Minor

The department offers a minor in physics. You can use this program as a technical preparation to complement work in other areas, such as business majors interested in careers in

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technologically oriented industries, marketing majors in technical or scientific sales, English majors who will be involved in technical writing, social science majors who might be involved in energy- and environment-related fields, and mathematics majors who plan to work in applied fields.

## Special Entrance Requirements

In addition to the general University entrance requirements, you should have satisfied the following requirements in order to be admitted to the physics programs:

- One year each of high school chemistry and physics
- A minimum of three years of mathematics, including algebra and trigonometry; students entering physics programs should be prepared to start calculus.

## Facilities

The offices, laboratories, and classrooms of the Department of Physics are located on the first floor of Merion Science Center on the University's North Campus. All classes and laboratories are taught by faculty and not teaching assistants. Even in introductory majors' courses, classes are small, limited to fewer than 40 students per section.

Present facilities include undergraduate laboratories dedicated to optics, electronics, surface and materials science, and special projects to which our undergraduates are given keyed access. Access is also provided to the department library. Each of these rooms contains multiple computers connected to the University's local area network and the Internet. Students can work with faculty on research projects involving the thermodynamics of liquid crystals, the physics of thin films, materials science, jamming transitions, solar physics, cosmology, and theoretical biophysics. Department faculty are also members of the Microanalysis and Imaging Research Center, and the Materials Research Center. Students can work with faculty on projects utilizing these facilities.

## Related Student Activities

Sigma Pi Sigma, the national physics honor society  
Society of Physics Students

## Department Scholarships

The Department of Physics annually awards several scholarships to

students in physics programs. Currently, these scholarships include the Robert M. Brown Endowed Scholarship for Physics, the Diane and Roger Casagrande Scholarship, the Benjamin Faber Scholarship, the Michael F. Martens Award for Achievement in Physics, and the Physics/Philosophy Prize.

## Faculty

You can access additional information about the Department of Physics faculty and the programs we offer on the web. (See "Information on Admission" below.) You can also find information on physics programs, courses, and faculty on the physics home page.

## For More Information

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Undergraduate Catalog: [http://www.wcupa.edu/\\_information/official.documents/undergrad.catalog/](http://www.wcupa.edu/_information/official.documents/undergrad.catalog/)

## Information on Admission

### Office of Admissions

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