

# Physics with Teacher Licensure in Science

Department of Physics, College of Arts & Sciences



## Why Physics with Teacher Licensure?

Physics plays a basic role in science, engineering, and technology. It deals with the physical world all around us at the most fundamental level, seeking to understand the energy transformations of physical processes and the forces that bind the most basic constituents of matter into more complex systems.

If you enjoy science and mathematics, are curious about the nature of things, and are fascinated by advances in technology, you will find the study of physics a challenging and rewarding way to pursue these interests. The study of physics will allow you to develop tangible marketable skills in demand for today's teachers, such as logical thinking, problem solving, the application of mathematics and computers to physical phenomena, and the use of sophisticated measurement techniques.

## Major Program of Study

Students combine a study of physics, chemistry, biology, and the Earth and space sciences with a study of teaching foundations and various field and clinical experiences as they complete the major. Successful completion of this program leads toward a Bachelor of Science in Physics as well as an Illinois teaching license for grades 9-12 science. Students considering a Physics major should take four years of mathematics, four years of English, and at least one year of physics in high school as preparation for college. If available, a year of chemistry is also recommended. Enriched or advanced courses in physics and/or mathematics are also highly recommended.

## Faculty

All Physics faculty hold doctoral degrees from distinguished universities around the world such as Iowa State University, New Mexico Institute of Mining and Technology, Texas A&M University, the University of Missouri-Columbia, Peking University (China), the Indian Institute of Science, and the University of Illinois. All of the faculty are enthusiastic and deeply committed to their teaching responsibilities and work diligently to model good instructional practices for their physics teacher education students and to assist in providing them with educational projects. Most of the Physics faculty have background experience in high school teaching, and all participate in high school outreach programs.

All Physics classes (both lecture and laboratory) are taught by faculty members. Our students enjoy a low student-to-faculty ratio. Faculty have a personal stake in the success of each and every student. They are dedicated to involving students in their active research programs, which can result in joint presentations and publications. Faculty members are always accessible to undergraduate and graduate students alike, and they maintain an open-door policy.

## Scholarships

The Department of Physics offers a number of scholarships for Physics majors for which they apply on a competitive basis, including several designated for Teacher Licensure students. Detailed information on scholarships is available at [wiu.edu/cas/physics/scholarship.php](http://wiu.edu/cas/physics/scholarship.php).

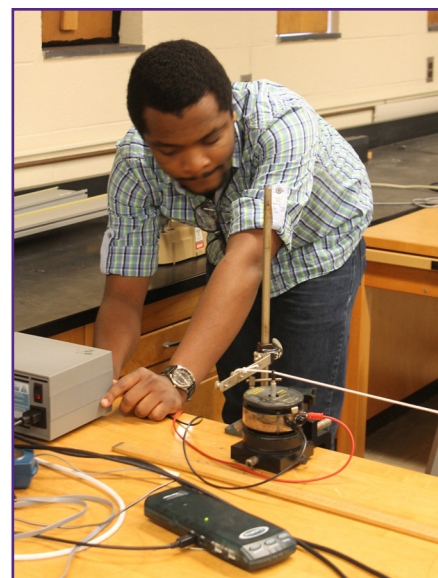
## Physics at Western

The Department of Physics is committed to offering every undergraduate and graduate student the opportunity to fully realize his or her potential in an environment dedicated to excellence. The department has a history of teaching excellence and a tradition of involving its students in the excitement and challenges of physics research. The department offers four-year programs in Standard Physics and Physics Teacher Licensure, a 3+2 dual degree in Engineering Physics and Engineering, a minor in Physics, and a Pre-Engineering program. The department also offers the Master of Science degree in Physics for physics teachers desiring to further their education in the discipline and thereby improve their teaching career opportunities.

## Research Opportunities

The Department of Physics has research programs that span from very applied to very fundamental problems in experimental and theoretical physics. Current active areas of research in the department are in experimental condensed matter physics, experimental and theoretical atomic-molecular-optical physics, nanoscale materials, astrophysics, physics education, superconductivity, and magnetism.

Physics faculty are very committed to providing exciting and unique research opportunities for both undergraduates and graduates and to work with them on a one-on-one basis as needed. Physics majors regularly present their results at University, regional, and national student research conferences. Students who carry out original research projects develop critical thinking skills and learn how to work independently as well as in teams. These are precisely the qualities that employers and graduate schools seek in their applicants, and our majors have been very successful in securing good teaching jobs after graduation or in continuing their education at prestigious graduate programs. Several have also won prestigious national fellowships in their junior or senior years.



## Student Activities

Physics students in the teacher licensure program participate in a number of activities through their program, including high school physics class visits, judging science fairs, coordinating events for Science Olympiad, and attending the WIU Secondary Science Education Conference and the Chemistry and Physics Demonstration Show. They are also highly encouraged to participate in professional organizations such as the Illinois Science Teachers Association, the National Science Teachers Association, and the American Association of Physics Teachers. In addition, students can participate in several departmental organizations such as the WIU National Science Teachers Association Student Chapter and the Society of Physics Students. Also, a wide variety of student activities and organizations are available to all Western students. Learn more at [wiu.edu/osa](http://wiu.edu/osa).

## After College

The vast majority of our students begin their teaching careers upon graduation while a few opt for other related careers. In addition to careers in teaching at public and private schools, graduates are also sought as corporate trainers; education specialists in nontraditional settings such as theme parks, museums, and labs; tutors; online teachers; as well as other positions needing an individual who possesses excellent people skills, ability to educate others, and a strong content background.

## For Your General Outlook

Students seeking to certify for secondary teaching take the four-semester University Physics calculus-based lecture and laboratory sequence (PHYS 211, 212, 213, and 214) during their first two years, which provides them with a combined theoretical and experimental introduction to all basic areas of physics. They also complete introductory courses in astronomy and earth science. During their third and fourth years, they take Physics laboratory courses in electronics (PHYS 427) and optics (PHYS 428) and at least two additional upper-division Physics courses of their choice. These students are also expected to take courses that prepare them in chemistry, mathematics, and biology.

## For More Information

The department welcomes visitors at any time. Call the Department of Physics at (309) 298-1596 or e-mail the science educator adviser, [LM-Barden@wiu.edu](mailto:LM-Barden@wiu.edu), or the chair, [mfmsb@wiu.edu](mailto:mfmsb@wiu.edu). You can also learn more about the department by visiting [wiu.edu/physics](http://wiu.edu/physics).

[wiu.edu/physics](http://wiu.edu/physics)

### Department of Physics

Currens Hall 212 • Western Illinois University  
1 University Circle • Macomb, IL 61455-1390  
Phone: (309) 298-1596



WESTERN  
ILLINOIS  
UNIVERSITY