

PHYSICS



"I feel confident jumping into my career and graduate coursework knowing that the MU physics faculty have given me the quantitative and analytical skills to be successful."

– Kevin Piaskowski '16

Physics is a mathematical study that attempts to understand the physical universe. It addresses fundamental questions about the nature of matter and energy, and the forces by which objects interact. Beginning with these basic principles and simple models, physicists build descriptions of atoms, organic material, stars and the origin of the universe. Physics also has an applied side: Scientists and engineers use their understanding of physical principles to solve practical problems in areas such as product development, process control and instrumentation.

DEGREES/CONCENTRATIONS

BACHELOR OF SCIENCE (B.S.)

The physics degree demands the most intense concentration of physics and mathematics. Students graduating with the B.S. in physics are prepared to go on to graduate school in physics and engineering, or to enter the private sector in a technical area.

BACHELOR OF SCIENCE IN EDUCATION (B.S.E.)

This degree is designed for students who wish to become physics teachers. The material is similar to our BS degree with the addition of the required education classes. A block of education classes during sophomore year and then a senior year filled with education classes in the first semester and student teaching in the second semester. Graduates with the B.S.E. degree often have their choice of job placement since physics teachers are in high demand.

4/2 PROGRAM

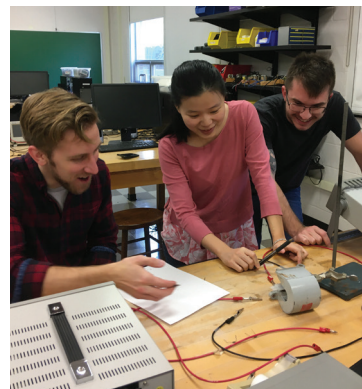
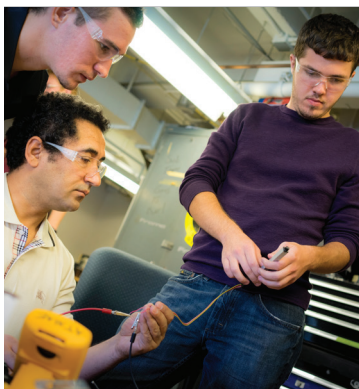
This program combines a B.S. degree in physics with a Master of Science degree in engineering. The student will complete their B.S. at Millersville and enter the graduate program of Pennsylvania State University's Graduate Department of Engineering Science and Mechanics as a master's degree candidate. Students can transfer up to six MU credits in physics and mathematics to the Penn State program, shortening the time needed to complete their master's degree.

PHYSICS MINOR

A minor in physics is a great option for students in any STEM field who are interested in a deeper understanding of the physical principles that form the basis of chemistry, biology, astronomy and earth sciences. It is also a good choice for students interested in pursuing advanced degrees in any of those fields.

CAREERS

- Physics provides the necessary training for entering careers in research, engineering and teaching.
- Physics is valuable for other interdisciplinary fields, such as medicine, bioengineering, law, computer system analysis and technical writing.
- Further career opportunities have been generated by demands in industrial research and development, on hospital staffs and in national laboratories. For more information, please visit www.aip.org/career-resources.



DID YOU KNOW . . .

- All students are provided the opportunity to engage in faculty-mentored research, a requirement for all degree pathways within the department.
- At anytime we have 50 to 70 physics majors and minors.
- On average, eight students graduate every year from our department.
- All resources, time, funding and energy are focused on doing one thing extremely well: undergraduate physics.
- The department holds regularly scheduled seminars in which students meaningfully interact with the speaker in a post-program event. A portion of the seminar speakers are also program alumni.
- We have a low student/faculty ratio (16 to 1).
- All lectures, laboratories and recitation classes are taught by Ph.D.s (no graduate assistants).

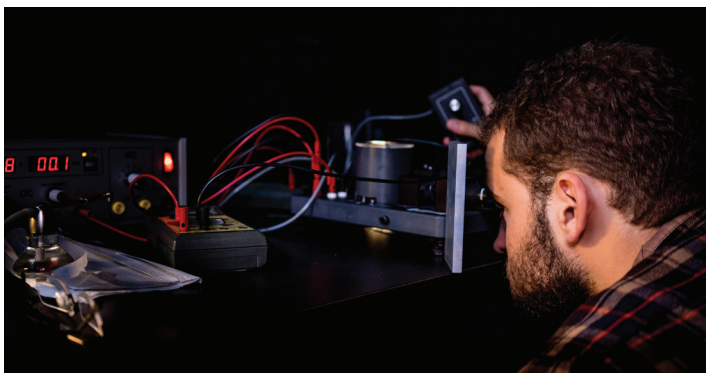
CLUBS AND ORGANIZATIONS

Society of Physics Students (SPS)

The SPS is open to all students, even nonmajors. They meet on a biweekly basis to talk physics and plan events throughout the semester. Some events include the Annual Welcome Barbecue in September, where we welcome new students to the program, and an annual trip to a national meeting of the American Physical Society (APS).

Within SPS, students can join up with the Demo Team or the Telescope Team. The Demo Team presents physics demonstrations to local schools. The Telescope Team uses the department's two 10.5" Celestron telescopes for public viewing nights of the stars and planets.

Our top students are inducted into Sigma Pi Sigma, the Physics Honors Society within the SPS, during a banquet held each April, where faculty and fellow students celebrate their academic achievements and their dedication to understanding the world around them through the study of physics.



ABOUT OUR GRADUATES

Physics graduates will learn:

- to solve complex problems.
- to think clearly.
- to work individually and in groups.
- to use the real world as a test of their skills, but not as a limit to their thoughts.

ALUMNI SPOTLIGHT

Dr. Hugh Herr '90, Professor, Media Arts and Sciences and Professor, Harvard-MIT Division of Health Sciences and Technology

Director of the Biomechanics group at the MIT Media Lab.

Keynote speaker at Millersville University's Spring Commencement in 2011

Dr. Steven Bromley '15, Postdoc, Auburn University

"Millersville's physics courses really prepared me for grad school. After talking to some of the other graduate students, I found out that most of them hadn't had an optics or thermodynamics course. The faculty at Millersville did a wonderful job; after speaking to other grad students, I realized how diverse Millersville's physics catalog was."

Linde Clark, Engineer, Bose Corporation

"My B.S. in physics at Millersville, first and foremost, prepared me very well for my master's in acoustics. I had an advanced understanding of waves, mechanical motion and differential equations (among other topics) compared to many other students in the M.S. program, which I attribute to the small class size learning environment, the broad spectrum curriculum covered, and the frequent one-on-one guidance and mentoring offered in the physics program at Millersville."

Dr. Sarah Geiger '13, Senior technical staff, Charles Stark Draper Laboratory

"My experiences as an MU physics major gave me a solid foundation for my Ph.D. research and my current career path. The classes educated me in a wide range of theoretical and experimental physics topics that I still apply today on a daily basis."