

Physics

Bachelor of Arts Degree
 Bachelor of Science Degree

Contact

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Admission Requirements

(In years as established by the college)

A high school diploma with the following specific courses:

- 4 English
- 2 Algebra I & II
- 1 Geometry
- 2 Lab Science (including biology)
- 2 History/Social Studies
- 2 Foreign Language
(same language or two years of American Sign Language)
- Academic electives (to equal at least 17 credits)

To ensure current mathematical skills, students should take a mathematics course during their senior year of high school.

Did You Know?

- We have three programs to allow maximum flexibility: the Bachelor of Arts that can easily accommodate course work in other disciplines, the Bachelor of Science that prepares you for graduate school or research careers, and engineering physics that emphasizes the science in engineering.
- Physics is so fundamental that we collaborate with the College of Engineering and many other UMaine departments on interdisciplinary research and education projects.

College of Liberal Arts and Sciences

Program Description

The UMaine Department of Physics and Astronomy offers high-quality, rigorous programs with a great deal of academic and social support for students to be successful in obtaining their degrees and embarking on careers. Faculty and staff are strongly oriented toward student success.

The Bachelor of Arts Program is designed to be adapted to a variety of student goals. It can provide the depth of a background in physics and mathematics required by students preparing for graduate school or a physics-based career in industry or government. It can be tailored to support careers in medicine, dentistry or in broad science areas such as astronomy, astrophysics, biophysics, environmental studies, geophysics and physical oceanography. It can serve the special needs of prospective secondary school science teachers or students who plan careers in management or law with a strong science background.

The Bachelor of Science Program is intended as optimum preparation for graduate education in physics, astronomy or related areas, leading to careers in basic or applied research and development. Also, because of its strong emphasis on science and mathematics, it is particularly appropriate for those seeking to use their B.S. degrees directly after graduation in careers in research at industrial, governmental or academic institutions.

Specialized Information

Our curriculum includes rigorous theoretical courses in all of the topic areas commonly offered by the best undergraduate physics programs, as included in the list of courses below. What happens at UMaine that is uncommon elsewhere is that physics majors take laboratory and hands-on courses every semester. Introductory physics courses have an integrated laboratory session each week. Sophomores have separate modern physics and mechanics laboratory courses. The junior year required lab courses cover electronics and more modern physics, with optional optics and nuclear physics labs available. In the Senior Project, students develop their own research and design project, in coordination with a physics faculty member. An undergraduate team recently installed a radio telescope on the roof of Bennett Hall and designed and built the control systems for it.

Recently, our undergraduates have had internships at a nonlinear optics laboratory in France, an astronomical observatory in Chile, the Jet Propulsion Laboratory in California, and NASA Marshall Space Flight Center in Alabama. One student had her own astronomical observing run at a large telescope in Arizona, and another student was a member of a team using a large telescope in California. Yet another worked on a team developing sensors that can operate at such high temperatures that they can be used to monitor the health of the insides of jet engines.

Another particularly unique opportunity for students at UMaine is the chance to earn a minor in innovation engineering, a program offered at no other institution in the world.

Representative Courses

PHY 100 Introduction to Physics and Astronomy
PHY 121 Physics for Engineers and Physical Scientists I
PHY 111 General Physics I
PHY 122 Physics for Engineers and Physical Scientists II
PHY 112 General Physics II
PHY 200 Career Preparation in Physics & Engineering Physics
PHY 223 Special Relativity
PHY 229 Physical Measurements Laboratory I
PHY 230 Physical Measurements Laboratory II

PHY 236 Introductory Quantum Physics
PHY 238 Mechanics
PHY 400 Career Preparation in Physics and Engineering Physics
PHY 441 Physical Electronics Laboratory
PHY 442 Modern Experimental Physics Laboratory
PHY 454 Electricity and Magnetism I
PHY 476 Mathematical Methods in Physics
PHY 481 Project Laboratory in Physics I

Associated Honor Societies and Student Organizations

Students majoring in physics are encouraged to join the Society of Physics Students, a national group whose UMaine chapter engages in local activities, such as organizing physics-oriented events or helping to build and operate our radio telescope. Those who are high-achieving are inducted into Sigma Pi Sigma, the national physics honor society. A student research paper is recognized by inclusion in a college-wide symposium each April.

Career and Graduate Opportunities

Physics graduates work in engineering careers at Boeing, National Labs, Fairchild Semiconductor and National Semiconductor. They also may pursue jobs in marine sciences, biophysics or microscopy with lasers, or obtain their master of science in teaching.

UMaine Graduate Programs

Master of Engineering in Engineering Physics
Master of Science in Physics
Doctor of Philosophy in Physics

About UMaine

The University of Maine, founded in Orono in 1865, is the state's premier public university. It is among the most comprehensive higher education institutions in the Northeast and attracts students from across the U.S. and more than 60 countries. It currently enrolls 12,000 total undergraduate and graduate students who can directly participate in groundbreaking research working with world-class scholars. Students are offered 88 bachelor's degree programs, 64 master's degree programs, 25 doctoral programs and one of the oldest and most prestigious honors programs in the U.S. The university promotes environmental stewardship on its campus, with substantial efforts aimed at conserving energy, recycling and adhering to green building standards in new construction. For more information about UMaine, go online (umaine.edu). Equal opportunity information also is available online (umaine.edu/eo).

How do I apply?

Visit go.umaine.edu for an application, as well as information about academics and life at UMaine.



Academic Programs 2011–12

The latest versions of the UMaine fact sheets are online (factsheets.umaine.edu). This fact sheet is intended for informational purposes only and is subject to change.

