



COLLEGE OF LIBERAL ARTS AND SCIENCES

Physics and Astronomy

UMaine's ADVANTAGE

- Wide-ranging research areas
- Research assistantships and fellowships and calendar-year teaching assistantships available
- State-of-the-art research centers

WHY STUDY PHYSICS AND ASTRONOMY AT UMAINE?

Physics is everywhere in our daily lives. Physics describes how boomerangs return, waves crash on the beach and soda fizzes. Physics is the science underlying all other physical and applied sciences, with the universe as a laboratory. Physics is the exploration of the unknown, trying to anticipate the unexpected.

The University of Maine Physics and Astronomy Department offers a wide variety of programs and opportunities, with world-class faculty members, internationally recognized research and first-rate facilities. Research topics include astronomy, biophysics, chemical physics, condensed matter physics, physics education, statistical mechanics and surface physics.

WHAT CAN I DO WITH A DEGREE IN PHYSICS AND ASTRONOMY?

Many physicists work in laboratories for universities, government or private institutions. Other physicists are in the classroom teaching about the wonders of the physical world.

Students graduating with a degree in physics and astronomy may find themselves: evaluating risk-return-market impact financial models on Wall Street; developing new golf ball dimple patterns and researching the subjective properties of sporting equipment; improving pattern-recognition software used in fingerprint identification for the FBI; creating cursive handwriting recognition software for the Census Bureau; applying wavelet theory to oceanography to predict climate behaviors; creating models for advanced data transmission (satellite, email, Web); designing acoustical and amplification structures for concert halls; or engineering equipment to reduce drag and increase traction for NASCAR.

OUR GRADUATE PROGRAM

The Master of Science program emphasizes both the understanding of physical phenomena and the development of physical measurement and research techniques.

The Master of Engineering in engineering physics program that emphasizes the accretion of the student's physics and engineering skills.

The Doctor of Philosophy program is equally divided between coursework and dissertation research. A dissertation presenting the results of an original investigation in a specialized area of physics is an essential feature of the program.

OUR UNDERGRADUATE PROGRAM

Our engineering physics program was first to be established in the nation and is the only accredited engineering physics program in New England. Students take a curriculum in applied science, including a carefully chosen sequence of engineering electives in one of the traditional engineering fields.

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 preparation for graduate education in physics, astronomy or related areas, leading to careers in basic or applied research and

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To apply: umaine.edu



Connect with us:
umaine.edu/socialnetwork

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 73 countries. It currently enrolls 11,286 total undergraduate and graduate students who can directly participate in groundbreaking research working with world-class scholars. The University of Maine offers doctoral degrees in 35 fields, representing the humanities, sciences, engineering and education; master's degrees in roughly 70 disciplines; 90 undergraduate majors and academic 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, visit umaine.edu.

explore

*Bachelor of Arts in
Physics*

*Bachelor of Science in
Physics*

Engineering Physics

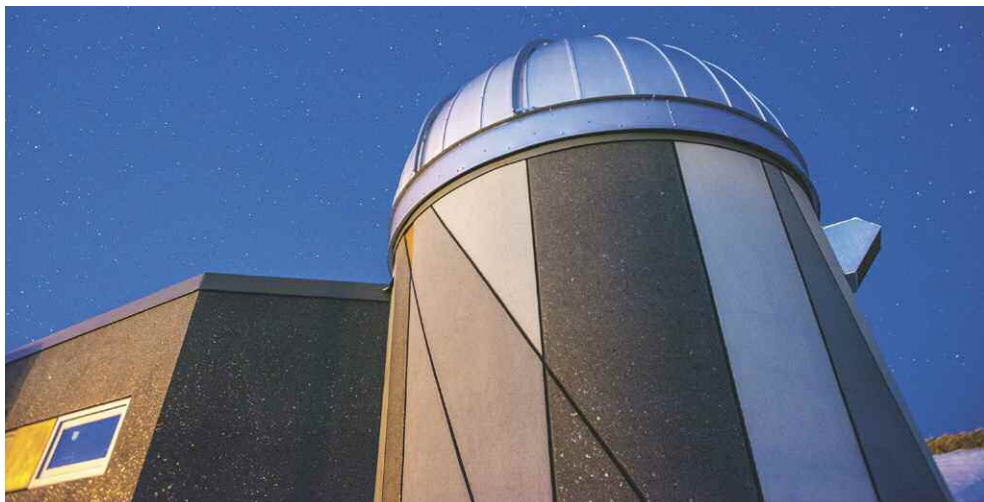
*Minors in
Astronomy
Physics*

*Master of Science in
Physics*

*Master of Engineering in
Physics*

*Master of Science in Teaching
Physics*

*Ph.D. in
Physics*



UMaine's Emera Astronomy Center.

development. Also, because of its strong emphasis on science and mathematics, it is particularly appropriate for those seeking to use their B.S. degree directly after graduation in careers in research at industrial, governmental or academic institutions.

RESEARCH FACILITIES AND COLLABORATION

The **Maine Center for Research in STEM Education (RiSE Center)** brings together faculty from the sciences, engineering, mathematics, and education to study the teaching and learning of disciplinary content knowledge. In physics, researchers have studied learning in middle and high school, introductory and advanced undergraduate classes, and graduate instruction. Collaborations exist with the State of Maine and school districts throughout the state.

UMaine's **Laboratory for Surface Science and Technology (LASST)** plays a major role in educating and training the next generation of scientists and engineers while carrying out interdisciplinary research projects and technology transfer activities in the areas of surfaces and interfaces, thin films, microelectronic devices, sensor technology, and nanotechnology. Researchers at LASST have excellent working relationships with several Maine companies and national and international partners through collaborative projects and service agreements. In addition, seven high-tech small businesses have been incubated from LASST technology.

The **Institute for Molecular Biophysics** brings together expertise in biophysics and engineering at the University of Maine, molecular and cell biology at the Maine Medical Center Research Institute (MMCRI) in Scarborough, and genetics and genomics at The Jackson Laboratory in Bar Harbor. The institute's goal is to explore the structure and function of genes and chromosomes within cells, in order to understand precisely how genes control both normal development and disease.

The **Emera Astronomy Center** features a planetarium dome 33 feet in diameter equipped with a state-of-the-art projection system and a 20-inch observatory digital telescope — both the largest in Maine.

OUR FACULTY

The Physics and Astronomy Department has 15 faculty members with over 50 combined research fields including: biophysics; nanophysics/surface science; physics and astronomy education research; statistical physics; spiral galaxies and galaxy clusters; and environmental/health physics. Multidisciplinary research projects are in collaboration with the departments of chemistry, electrical engineering, biochemistry, geological sciences.

HOW DO I APPLY?

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

