

PHYSICS

Linking the mysteries of science with everyday life

Scientists cannot hope to understand the universe without first comprehending physics. At Elon, the Physics program is one of the most versatile and broadly applicable majors because it is interdisciplinary and gives students impressive skills that are valuable in any career or field of graduate study.

The Physics curriculum includes study of the social sciences and humanities as well as other sciences, mathematics, computer science and engineering. The scholarly interests of Physics faculty are also interdisciplinary, spanning the spectrum of physics disciplines.

Students pursue research into the mysteries of deep space and the subatomic world as well as the fascinating physics of everyday objects. Graduates succeed in business, engineering and a variety of other careers because of the intellectual rigor they experience while studying the most profound and engaging material of physics.

DYNAMIC CURRICULUM

Elon offers bachelor of arts and bachelor of science degrees in Physics as well as a Physics Engineering degree. A minor in Physics is also offered. The strength of the program lies in small classes and the close mentoring relationships that develop between Physics faculty and students. The department's faculty members are effective and innovative instructors who incorporate many different teaching techniques and technologies into the classroom to enhance understanding.

The major course of study begins with a three-semester sequence of courses, ranging from mechanics through electricity to

basic nuclear physics and particle theory. Building on this base, Elon offers courses in the advanced theory of electromagnetic phenomena, the mysterious world of quantum

“The rigor of Elon’s Physics program helped prepare me for the enormous amount of work in graduate school. Physics classes introduced me to solving extremely complex problems. Without that experience, I would not be able to survive the nuclear transport problems I now face. Almost all of my classes at Elon were small, which helped me to develop learning relationships with my professors. I value those relationships more than I’ll ever value a class.”

JIM FISCHER '00, NUCLEAR ENGINEERING PH.D. PROGRAM AT PENN STATE UNIVERSITY

mechanics and a wide range of other topical courses, including classical mechanics, mathematical physics, circuit design, thermodynamics, field theory and astrophysics.

Students majoring or minoring in Physics can expect a diverse and stimulating array of opportunities in their course work

and in research, both within the traditional realm of physics and across academic disciplines.

LEARNING THROUGH RESEARCH

Research is a vital part of Elon's Physics program. Like internships, lab research opportunities help students develop important professional skills and give them the chance to experience life as a scientist.

Junior-level Physics majors take a year-long lab/seminar course that focuses on experiment design, data analysis and the presentation of scientific information. All Physics majors are also asked to do at least one semester of independent research. This background has allowed Elon's Physics program to succeed in placing students at research sites nationwide through the National Science Foundation's Research Experiences for Undergraduates program as well as other national lab and research institution programs.

Physics majors have conducted research at a laser facility in Florida and in research labs at the University of California at Davis, Bucknell University, the University of Rochester, the University of Iowa and Brookhaven National Labs among other major institutions.

Recent student research projects include:

- Investigation of Electrons in Different Alloys of Nickel and Manganese
- Observation of asteroids with a radio telescope
- Atomic imaging of the surface of materials
- Acoustic analysis of concert halls

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- Study of the chaotic behavior of granular materials
- Exploring New Perturbative Techniques in Quantum Field Theory

EXPERT FACULTY

Elon's outstanding Physics faculty have a broad array of scholarly interests and expertise, including nanotechnology, computational theory, engineering, astronomy, geology and environmental studies.

Physics faculty actively pursue research in astrophysics, chaos theory, particle theory, quantum gravity, the physics of crystals and solids, physics teaching and engineering. They have also secured grants to enhance the Physics curriculum, including grants from the National Science Foundation and NASA.

Faculty members have also led study abroad courses on the astronomy of ancient civilizations, the engineering of Rome and the scientific history of England.

EXCELLENT FACILITIES

Located in stunning McMichael Science Center, Elon's Physics program gives students access to advanced scientific equipment, including X-ray and spectroscopic devices as well as atomic force and electron microscopes that magnify objects at molecular and atomic scales.

Physics majors also have access to extensive computer facilities, including workstations for computational physics, mathematical analysis and computer-aided design. An astronomy observing platform and a range of telescopes on the roof of Koury Center are also available to Physics majors.

SPECIAL OPPORTUNITIES

Academically talented students who plan to major in Physics are encouraged to apply for Elon's prestigious Elon College Fellows program.

As an Elon College Fellow, you will discover the relationships between the arts and sciences through freshman year interdisciplinary seminars, sharpen your research skills through a paid research assistantship and work with a small group of peers and faculty to explore the revolutionary progress of science. Fellows receive \$3,500 scholarships renewable annually.

All Physics majors are encouraged to present their research findings at Elon's annual Student Undergraduate Research Forum. Students may also join the Society of Physics Students and become eligible for the national physics honor society and national awards and grants.

Several Elon students have participated in GlaxoSmithKline's Women in Science program, which offers scholarships and mentoring opportunities between female students and experienced female scientists.

AFTER GRADUATION

Because the study of physics trains the mind for general problem solving, a degree in Physics is one of the most prized among college degrees. Employers in every field that requires critical thinking and problem solving seek out Physics majors. Elon graduates have gone on to successful careers in technology, business, finance and education.

Approximately 80 percent of Physics majors pursue graduate study, which is required for all physics specialties. Elon graduates have pursued careers in astrophysics, particle physics, condensed matter physics, chaos and dynamical systems and theoretical physics as well as electrical engineering, computer chip fabrication and design, and mechanical and civil engineering.

For more information on Elon's Physics program, go to www.elon.edu/physics.

FOR MORE INFORMATION PLEASE CONTACT:

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