Physics and astronomy

Wright Laboratory of Physics I 110 N. Professor Street I Oberlin, Ohio, 44074 I (440) 775-8330

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COLLEGE & CONSERVATORY

A dictionary might define physics as "the science that deals with matter and energy," but in fact it is not practical to set any limits upon physics "by definition." Physicists study everything from galaxies to subatomic particles, from window glass to living things, in an attempt to understand the basic principles of nature and their effects on the world in which we live. Students studying physics at Oberlin find a lively, diverse program with faculty interested in both undergraduate teaching and physics research, with a rich selection of physics and astronomy courses, and with ample opportunities for both formal and informal physics education, including active student research involvement.

Our program is large enough to offer a first-rate education, yet small enough to encourage close student-faculty interaction. Course offerings cover the fundamental areas of physics, as well as electronics and astrophysics. Guest speakers visit campus about once a month to give lectures and to talk informally with students. Frequent lunch gatherings generate lively discussion between students and faculty concerning recent happenings in physics.

About 10 physics majors graduate annually. About half of the recent majors have entered graduate school at such institutions as Princeton, Cornell, Rochester, and the universities of California, Colorado, and Illinois. Others have gone on to medical school or to graduate school in fields such as biology, astronomy, geology, meteorology, or engineering. Still others have found rewarding jobs in industrial or government laboratories, in high school teaching, and in computer programming.

Each year, about one-third of the senior majors participate in the honors program, undertaking a research project of their own choosing. Many select projects related to faculty research, while others pursue independent investigations.

Our faculty members engage in research in a variety of areas, including radio astronomy, nuclear physics, materials physics, and theoretical physics. During summers and the academic year, many students assist faculty with their lab work. Students recently accompanied a faculty member to Puerto Rico for radio astronomy observations, and to Japan and the Netherlands for nuclear physics experiments.

The physics and astronomy department occupies the Wright Laboratory of Physics, which houses offices, classrooms, teaching and research laboratories, and a machine shop and an electronics shop. The ground floor of Wright houses an impressive laboratory facility with updated electrical, air, and chilled water services. The upper two floors were renovated in 2001 and 2002. Departmental apparatus includes three high-vacuum stations, an infrared spectrometer, a liquid helium cryostat, a reflecting telescope with a state-of-the-art CCD camera, numerous 60-MHz oscilloscopes, an electrically shielded room, and three computer labs.

The campus computer network, which offers instant Internet access, runs to every room in the building. An X-ray diffractometer is shared with the chemistry department, and the department access to a scanning electron microscope operated by the biology department.

Our department offers a solid academic program and an opportunity for undergraduates to work closely with faculty on interesting research.

CURRICULUM OVERVIEW

The courses in physics and astronomy are designed to serve both students interested in science as an important part of a general education and those desiring intensive training in physical science.

Students may major in physics as preparation for further professional training in physics, astronomy, or engineering, or as excellent background for careers in other fields such as medicine, law, biology, geology, and secondary school science teaching. The physics major offers concentrations in physics, astrophysics, and materials physics. Students interested in careers in engineering may also consider the Combined Liberal Arts and Engineering Program. We encourage students with special interests to include physics and astronomy courses in an individual major, or to plan a double major.

COURSE SAMPLING

- ASTR 100 - Introductory Astronomy
- PHYS 110 - Mechanics and relativity
- PHYS 111 - Electricity, Magnetism, and Thermodynamics
- PHYS 212 - Modern Physics
- PHYS 268 - Environmental physics
- PHYS 340 - Physics of Materials

ABOUT THE FACULTY

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