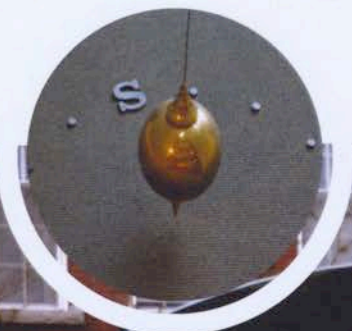


PHYSICS AND ASTRONOMY
AT DARTMOUTH COLLEGE



Dartmouth

MAJORING IN PHYSICS

PROBE THE WORKINGS OF THE UNIVERSE, FROM THE SMALLEST ELEMENTARY PARTICLES, TO THE LARGEST COSMOLOGICAL SCALES.

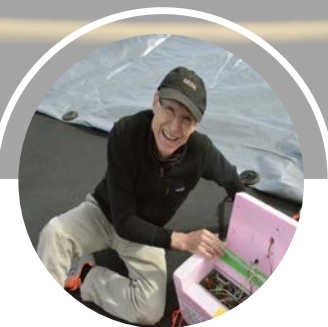
The physics major will quickly take you from the basic laws of mechanics to advanced and special topics by your sophomore or junior year. The first year, physics majors explore three principal subjects on which physics is built: mechanics, electricity and magnetism, and quantum mechanics. The intermediate core courses (typically taken sophomore year) consist of one each in classical mechanics, electricity, quantum mechanics, and statistical mechanics. As you work your way through these courses, your curiosities will take you to special topics such as cosmology, plasma physics, or quantum information theory. Guide your learning experience by branching

out far and wide, or delving deep into a specific area, perhaps even sampling the graduate curriculum available to advanced undergraduates. Receive course credit for engaging in research with faculty members and try your hand at a senior honors thesis.

Prerequisites: Math 3, 8, 13, 23, or equivalent, and Physics 13, 14 or Physics 15, 16 (for qualified students).

Required Courses: 19, 40, 41, 43, 44, 50, plus two electives (which between them must include a culminating experience and a laboratory course). Students taking P15-16 substitute P19 for a 3rd elective course.

*WHETHER IN THE CLASSROOM OR THE RESEARCH LABORATORY
DISCOVER PHYSICS, FOR YOU.*



MAJORING IN ASTRONOMY OR ENGINEERING PHYSICS

EXPLORE THE UNIVERSE WITH THE ASTRONOMY MAJOR, OR GETS HANDS-ON EXPERIENCE WITH THE ENGINEERING PHYSICS MAJOR!

Astronomy is not a mere subfield of physics, but a truly interdisciplinary quest to understand the universe. Problems in modern astronomy require a diversified background in the sciences; advanced courses offered include high energy astrophysics, general relativity and gravitation, and more. Graduate level courses are likewise open to qualified undergraduates.

Prerequisites: see physics major.

Required Courses: A15, 25, 61; one of A74, 75, 81, and 87.

Four electives, at least two of which must be in the Physics and Astronomy department, and two of which can be satisfied with advanced courses in other sciences. The eight courses must include a culminating experience.

The Department of Engineering Sciences and the Department of Physics and Astronomy offer a major in Engineering Physics for students interested in both disciplines. This unique major features a 5/5 split in courses, unlike a modified major which requires six courses from one field and four from the other, and provides for in-depth study in both departments.

Prerequisites: see physics major. In addition, Chemistry 1 and an introductory CS course are also required.

Required Courses: ENGS 22, 23, 24; P19, 40, 43. At least two electives from each department. Physics 15-16 students do not take Physics 19 but substitute a third elective physics course for it.

THE ASTRONOMY FOREIGN STUDY PROGRAM

STUDY ABROAD IN SOUTH AFRICA AND EXPERIENCE ASTRONOMY AT THE LARGEST TELESCOPE IN THE SOUTHERN HEMISPHERE.

Escape Hanover's winter and journey to sunny South Africa to learn about astronomy at the largest telescope in the Southern Hemisphere. Take classes with a small group of Dartmouth students at the University of Cape Town for five weeks, then venture outside the classroom to experience hands-on observational astronomy at the South African Astronomical Observatory. Learn observational astronomical techniques and collect data for your own independent research project, mentored by a faculty member. For more information, visit our website and contact Professors Chaboyer or Thorstensen: www.dartmouth.edu/~physics/people/faculty.html

Prerequisites: Math 3, Physics 3 or 13 or 15.

FSP courses: Astronomy 15, 61, 81.



STUDENT RESEARCH OPPORTUNITIES

EXPERIENCE HANDS-ON EXPERIMENTAL AND THEORETICAL RESEARCH WITH THE GUIDANCE OF A DARTMOUTH PHYSICS FACULTY MEMBER.

Get involved in original research with a Dartmouth faculty member as early as your freshman year! Whether through a host of organized college-wide programs such as WISP, Sophomore Science Scholars, Presidential Scholars, and Senior Honors Theses projects, or by their own initiative, Dartmouth students have the chance to participate in research efforts underway in the department. Active research areas include astronomy, plasma & space physics, condensed matter, and cosmology. Students have the opportunity to work in an experimental laboratory or with a theoretical research group, and can tailor their research

experience to match their curiosities and interests. Many of our students involved in research go on to publish papers, attend conferences, and present posters, all while gaining invaluable hands-on experience, building important math, physics, and collaborative skills, and strengthening their credentials for entering industry or academia.

For more information on research at Dartmouth, visit www.dartmouth.edu/~ugar, and be sure to take a look at www.dartmouth.edu/~physics/research/overview.html.

CAREERS WITH PHYSICS

What do students of physics do when they have obtained the bachelor's degree? About 40% of our graduating majors go on to graduate study in physics or a related discipline, aiming at a career in academia or research. Others go to medical school or engineering school, some become high school science teachers, and others start work immediately as research technicians. However, by no means do all our majors pursue technical careers: there are many other possibilities. Many go into business, law school, social work and a host of other careers. Because physics is, in the words of Nobel Laureate Richard Feynman, among "the most fundamental and all-inclusive of the sciences", a physics or modified physics degree is a good basis for any

career in which scientific and technological considerations play an important role: in the modern world, this includes almost the entire spectrum of human activity. The study of physics provides training in problem solving by quantitative and logical thinking and by model building, and develops the habit of concentrating on essentials and eliminating irrelevant detail. These are valuable skills in every walk of life. Many analytical techniques used in business and economics, such as operational research and game theory, were originally developed by physicists. As a physics graduate, you will be well-equipped to start into a variety of careers with the tools and skills necessary for success.

DARTMOUTH PHYSICS SOCIETY

Explore physics outside the lecture hall! The Dartmouth Physics Society- a group of students interested in physics and astronomy – regularly organizes activities on and off campus, including: liquid nitrogen ice cream socials, camping with other colleges' physics clubs, outreach projects in local communities, trips to Canobie Lake Amusement Park, laboratory and private company tours, chats with visiting scientists and speakers, and more! For more information, please be sure to email: dartmouth.physics.society@dartmouth.edu



Dartmouth

6127 Wilder Laboratory, Dartmouth College, Hanover, NH, 03755

Tel: 603.646.2854 Fax: 603.646.1446 www.dartmouth.edu/~physics