Astronomy

PROGRAM OVERVIEW The Department of Physics and Astronomy offers a major directed toward a career in astronomy. The first-year and sophomore program includes a combined concentration in astronomy, physics and mathematics.

Most professional positions in astronomy and astrophysics generally require study leading to the Ph.D. degree. Opportunities include research positions in observatories, often in conjunction with university teaching, and scientific positions in government agencies and industry.

FACULTY The Physics and Astronomy Department is comprised of four full-time professors, all of whom have doctorates, and two part-time assistants. Faculty research interests include Astronomy, Astrophysics, Atomic Physics, Mathematical Physics, Nuclear Physics, and Particle Physics.

ACADEMIC PREPARATION A student must be comfortable with and enjoy mathematics to pursue astronomy as the field relies heavily on deductive and analytical reasoning. An incoming student should have completed four years of math through pre-calculus in high school. A physics course in high school is helpful but not required.

REQUIREMENTS FOR MAJOR The Bachelor of Science degree requires a minimum of 49 credit hours in astronomy and physics courses in a program to be developed by the student and the adviser and approved by the department. The upper division program concentrates on astrophysics with courses in such areas as mechanics, electromagnetic theory, and astrophysics.

DRAKE CURRICULUM The Drake Curriculum, required of all undergraduates, is designed to help students meet personal and professional goals as they acquire fundamental knowledge and abilities in ten Areas of Inquiry, including communication, critical thinking, artistic experience, historical consciousness, information and technology literacy, international and multicultural experiences, scientific and quantitative literacy, values and ethics and engaged citizenship. Students work closely with their academic advisers to craft a program of study in general education that prepares students for civic and professional leadership.

The Drake Curriculum also requires first-year seminars, which foster development of critical thinking and written and oral communication skills through a topical focus; and a Senior Capstone, in which students demonstrate the capacity to bring information, skills and ideas to bear on one project.

INTERNSHIPS & OPPORTUNITIES Students are encouraged to take advantage of research participation opportunities with professors. Opportunities exist in many areas such as atomic physics, astrophysics, nuclear and particle physics, and quantum theory. Most upper division students obtain summer internships funded by the NSF through the Research Experiences for Undergraduates (REU) program at laboratories and universities throughout the U.S.

The department maintains two computer laboratories, one teaching laboratory and one research laboratory. The teaching laboratory has nine PC's available to the students. The research laboratory has one computer with a 16 parallel processor architecture, three alpha machines and three Sun workstations. Students doing research participation with professors have access to these machines.

CAREER OPTIONS Students who major in astronomy may pursue further education in physics, geophysics, or astronomy in order to enjoy rewarding careers in industry and government. Some direct career possibilities are as research assistants or in applied computer science at government observatories such as Kitt Peak. Most professional positions in astronomy require study leading to a doctoral degree. Any student who is recommended to pursue a masters or doctoral program in any area of astronomy or astrophysics will receive full financial support from the graduate school involved in the form of fellowships or assistantships which include salary as well as tuition.

HONORS For first-year students, the Department conducts the Drake Physics Prize Examination contest in the spring of each year. The test is offered in high schools in Iowa, Minnesota, South Dakota and North Dakota. The student with the highest test score is awarded a four-year full tuition scholarship. The top 50 senior students are offered the opportunity to apply in a closed competition for a second four-year full tuition scholarship restricted to physics or astronomy majors. The second scholarship is awarded based on a student's overall academic record, recommendations and an on-campus interview. In addition the Crusinberry Family Endowed Scholarships and Paul S. and Dorothy H. Helmick Scholarships are awarded to undergraduate students who have demonstrated continuing interest and outstanding scholarship in the fields of physics or astronomy. The outstanding junior student is awarded the Helmick Senior Scholarship for his/her senior year and is known as the Helmick Senior Scholar. The outstanding senior student is awarded the Paul S. Helmick prize which consists of a cash award and the inscription of the student's name on a permanent plaque on display in the department office.

STUDENT ORGANIZATIONS AND ACTIVITIES The Society of Physics Students chapter is very active at Drake. Astronomy majors are welcome. Activities include volleyball, soccer, picnics, and field trips.

HOW TO REACH US

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