Graduate study in physics and astronomy is highly individualized. The department does not offer a Ph.D. in astronomy, but students may pursue a Ph.D. in physics with subprogram and a dissertation in astronomy.

Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress. All graduate students who intend to pursue a Ph.D. in physics must pass the qualifying exam; see Requirements [p. 1] in this section of the Catalog.

Requirements

The Doctor of Philosophy program in physics requires a minimum of 72 s.h. of graduate credit. For students interested in doing doctoral work in astronomy, the department offers an optional astronomy subprogram, including dissertation, within the Ph.D. program in physics.

Graduate students who wish to pursue a Ph.D. in physics must pass a qualifying examination in all principal areas of physics at the level of advanced undergraduate work. The examination, which may be repeated only once, is given each year before the beginning of the spring semester. Students must pass the qualifying examination before the beginning of their fourth semester of graduate work at the University of Iowa. Students with high scores on the Graduate Record Exam (GRE) subject test in physics may be exempt from this requirement.

All students must take comprehensive examinations; participate in advanced seminars; do original research in experimental physics, theoretical physics, or astrophysics; and prepare and defend a written dissertation based on this work.

The program of study for the Ph.D. includes thorough course work in both classical and quantum physics for all students, whether their specialized research is in an experimental or a theoretical area.

All students must earn at least 24 s.h. in departmental courses numbered 5000 or above. They may not count credit earned in PHYS:7990 Research: Physics, PHYS:7992 Individual Critical Study, ASTR:7991 Research: Astronomy, or seminars. Ph.D. students in physics without the astronomy subprogram must complete the following courses.

**Four of these:**
- ASTR:6781 Galactic Astronomy 3
- ASTR:6782 Extragalactic Astronomy 3
- ASTR:6785 The Interstellar Medium 3
- ASTR:6790 Stellar Astrophysics 3
- ASTR:6870 Radiative Processes in Astrophysics 3
- ASTR:6880 High Energy Astrophysics 3
- ASTR:7830 Space and Astrophysical Plasma Physics 3
- PHYS:7760 General Relativity and Cosmology 3

**Two of these:**
- PHYS:5710 Classical Mechanics 3
- PHYS:5730 Statistical Mechanics I 3
- PHYS:5741- PHYS:5742 Quantum Mechanics I-II 6
- PHYS:5811- PHYS:5812 Classical Electrodynamics I-II 6

After a student has chosen a research specialty, the student must submit a formal thesis proposal and defend the proposal in an oral comprehensive exam. The appropriate thesis advisor then becomes the candidate’s general advisor and the chair of the comprehensive and final examination committee. The comprehensive exam must be taken before the beginning of the fourth year of graduate study.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College.

Financial Support

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Contact the Department of Physics and Astronomy chair.

Career Advancement

Graduates have opportunities for employment in universities, colleges, and research laboratories in government and industry. Physics and astronomy graduates have mastered skills that are readily transferable to a number of fields. They might choose to work in engineering, software development, finance, or consulting.

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.