Physics, MS

Graduate study in physics and astronomy is highly individualized. Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress.

Learning Outcomes

Graduates will:

- understand the foundational principles that transcend many distinct areas, and learn the technical language, problem-solving skills, and training in technical listening and discussion;
- learn and practice advanced discourse in mathematical aspects that translate to physics;
- become familiar with the state-of-the-art experimental tools and equipment in the field;
- promote aspects of creativity and originality in the field and prepare for adaptability to new discoveries;
- learn and practice advanced discourse in experimental and observational aspects, including data and information mining, translating experimental observations to physical principles and vice versa; and
- learn analysis of data and computational skills as well as become familiar with state-of-the-art techniques for data processing.

Requirements

The Master of Science program in physics requires a minimum of 30 s.h. of graduate credit. All students must earn the required 30 s.h. of graduate credit in courses numbered 4000 or above, with at least 15 s.h. in courses numbered 5000 or above. At least 24 s.h. must be completed under the auspices of the University of Iowa after admission to the Department of Physics and Astronomy. Students must maintain a program grade-point average of at least 2.75.

Each student's plan of study should provide for as much advanced work as aptitude and previous preparation permit. Up to one-third of the program of study may be taken in related scientific fields other than physics (e.g., mathematics, chemistry, astronomy, geology, engineering).

The degree is offered with a thesis or critical essay. Students who choose the thesis option must write a thesis based on an original experimental or theoretical investigation that they have conducted. Students may earn a maximum of 6 s.h. in PHYS:7990 Research: Physics or PHYS:7992 Individual Critical Study.

Students who choose the critical essay option must conduct an independent study of the literature on a particular area of physics and write a critical essay on that topic. Students may earn a maximum of 4 s.h. in PHYS:7990 Research: Physics or PHYS:7992 Individual Critical Study.

The MS may be a terminal degree or a step toward a PhD. In either case, the final examination is oral, conducted by a committee of three faculty members.

Admission

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

Career Advancement

Graduates have opportunities for employment in universities, colleges, and research laboratories in government and industry. Physics 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.

Academic Plans

Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Physics, MS

Course	Title	Hours
Academic Career		
Any Semester		
30 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a, b]		
Students must maintain a Graduate College program GPA of 3.00 or higher. [c]		
	Hours	**0**
First Year		
Fall		
Physics course [d]		3
Physics course [d]		3
Physics course [d]		3
	Hours	**9**
Spring		
Physics course [d]		3
Physics course [d]		3
Elective course [d]		3
	Hours	**9**
Second Year		
Fall		
Elective course [d]		3
Elective course [d]		3
Elective course [d]		3
	Hours	**9**
Spring		
Elective course [d]		3
Final Exam [e]		
	Hours	**3**
	Total Hours	**30**

a Students must earn at least 15 s.h. in courses numbered 5000 or above. Up to one-third of the program of study may be taken in related scientific fields other than physics (e.g., mathematics, chemistry, astronomy, geology, engineering).

b Students must complete specific requirements in the University of Iowa Graduate College after program

admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.

c Graduate College program GPA is comprised of all courses that are approved degree requirements. If a student takes more than the minimum required number of semester hours to complete the degree, but all courses taken are eligible to count toward the degree, those courses will be included in the Graduate College program GPA.

d Work with faculty advisor to determine appropriate upper-level graduate coursework and sequence.

e Oral examination.