

Astronomy (MA)

Graduate instruction and research are conducted in observational astronomy, and theoretical astrophysics including analytical and computational methods. Observational opportunities are available in conventional photometry, polarimetry, and fast photometry of stellar oscillations; spectroscopy and spectrophotometry of planets, stars, nebulae, galaxies, and quasars; galactic and extragalactic research; optical and infrared instrument development; planetary and cometary studies; extrasolar planets; and infrared, millimeter, submillimeter, and radio astronomy. There are also instruction and research opportunities in theoretical astrophysics, including the origin of the elements, cosmology, stellar structure and evolution, star and planet formation, and high-energy astrophysics. There are opportunities for cooperative interdepartmental research with groups in the Department of Physics and the Department of Aerospace Engineering and Engineering Mechanics.

Graduate Handbook

Graduate handbook information is updated and maintained by each program. Graduate handbooks are available within each program's office and [online](#). Please contact the program with concerns or questions.

Admission

Prerequisites for graduate work in astronomy are at least 15 to 18 semester hours of upper-division coursework in astronomy and physics, including courses in mechanics, electricity and magnetism, statistical physics, and quantum mechanics. The General GRE and GRE Physics tests are not considered in selecting applicants to the PhD program. A detailed evaluation is made of each new student's physics and astronomy background to identify any deficiencies that should be addressed in order to ensure success in the program.

Total hours required: 30

Requirements

Code	Title	Hours
AST 698	Thesis	6
Hours chosen from:		6
Category A (see course list tab)		
Hours chosen from:		18
Course B (see course list tab)		
All students must also follow the requirements and policies below:		
Graduate Natural Sciences Requirements		
Graduate University Requirements		
Total Hours		30

Additional Requirements and Policies

Students must earn a grade of B- or higher in all courses that count towards the degree.

With approval of the student's research supervisor and the graduate advisor, electives may include graduate coursework offered by other related programs; typically, no more than two outside of Astronomy elective course will be allowed.

Students begin research during their first year. Research is done under the supervision of a research supervisor and committee and normally takes a year and a half. A Master's Thesis is developed under the guidance of the committee. The thesis must be approved by the

committee and submitted in electronic format to the Office of Graduate and Postdoctoral Studies.

Course Lists

Category A Courses (Fundamental Astrophysics)

Code	Title	Hours
AST 380E	Radiative Processes and Radiative Transfer	3

Category B Courses (Astronomy Main Subfields, Applied Methods and Specialized Topics)

Code	Title	Hours
AST 381C	Gravitational Dynamics	3
AST 382C	Astrophysical Gas Dynamics	3
AST 386C	Properties of Galaxies	3
AST 393F	Survey of the Interstellar Medium	3
AST 396C	Elements of Cosmology	3
AST 383C	Stellar Atmospheres	3
AST 383D	Stellar Structure and Evolution	3
AST 392J	Astronomical Instrumentation	3
AST 394P	Planetary Astrophysics	3
AST 394F	Formation of Galaxies and Large-Scale Structure	3
AST 382D	Astronomical Data Analysis	3
AST 392D	Mathematical Methods of Astrophysics	3
AST 384C	Computational Astrophysics	3
AST 392G	Observing Techniques in Astronomy	3
AST 398T	Supervised Teaching in Astronomy	3