

MASTER OF SCIENCE IN PHYSICS: CONCENTRATION IN ASTRONOMY

The Master of Science in Physics with a concentration in Astronomy is similar to the M.S. in Physics program, but with a selection of core courses better suited to those planning to pursue careers in astronomy education and outreach, or in astronomical observatories and laboratories. It is also suitable for those seeking entry into Ph.D. programs in astronomy.

Progress toward Degree

Classified or conditionally classified graduate students who do not successfully complete two courses per year toward their Advancement to Candidacy are subject to disqualification.

Graduate students are expected to attend colloquia and must attend at least five per semester unless excused by the graduate coordinator.

Written English Proficiency Requirement

The University has a requirement for written English proficiency that is to be assessed at two levels.

Level One (Prior to Admission)

Satisfied by obtaining a score of 4.5 or above in the analytical writing portion of the GRE. Applicants who do not receive a minimum score of 4.5 on the GRE may be admitted conditionally and must complete SCI 614 or SCI 560GW with a grade of B or better during the first year.

Level Two

Satisfied by submitting a thesis which the thesis committee agrees meets the level two standard, or by submitting a paper of at least ten pages which the graduate coordinator agrees meets the level two standard.

Examinations

The oral defense of the thesis is delivered to the student's advisory committee and includes responses to questions from the committee on subjects related to the thesis topic. The master's comprehensive oral examination (PHYS 896EXM) is delivered to the student's advisory committee and covers all areas of theoretical and experimental physics deemed appropriate by the committee. The oral defense of the thesis or the master's comprehensive oral examination may be repeated once, under conditions specified by the committee, upon petition by the student.

Prior to taking graduate courses numbered 700-799, M.S. students must pass a written examination on undergraduate-level physics. Those intending to concentrate in astronomy may also be separately tested on appropriate undergraduate-level material prior to taking astronomy courses numbered 700-799; testing will occur at the discretion of the graduate coordinator. The requirement may be satisfied by achieving a satisfactory score on the Physics Major Field Test or Physics GRE. While new graduate students may take graduate courses during their first semester with the department (in consultation with the graduate coordinator), they must pass this test before taking graduate courses in subsequent semesters. If a student fails to pass the test, they will be advised to take appropriate undergraduate courses to remedy those gaps that prevented them from passing the test. Tests taken more than six

months prior to enrollment as a graduate student in the department do not fulfill this requirement.

Physics (M.S.): Concentration in Astronomy – 30 units

Group I: Core Courses (12 units)

Code	Title	Units
ASTR 722	Radiative Processes and Gas Dynamics in Astrophysics	3
ASTR 742	Galaxies and Cosmology	3
ASTR 770	Observational Techniques in Astronomy Research	3
PHYS 701	Classical Mechanics	3

Group II: Graduate Physics and Astronomy Electives (9 units)

Elective graduate physics or astronomy courses with numbers in the range of PHYS 700–790 and ASTR 700–798 (Note: PHYS 800–899 do not count in this category).

Code	Title	Units
The following are recommended:		
ASTR 700	Stellar Astrophysics	3
ASTR 798	Astronomy Research Literature	2
PHYS 712	Physics of Plasmas	3
PHYS 725	Special and General Relativity	3
PHYS 740	Computational Physics	4
PHYS 775	Statistical Physics	3
PHYS 785	Theoretical Physics	3

Group III: General Electives (6–9 units)

Elective advanced upper division (numbered 400 or above) or graduate courses in physics, astronomy, or appropriately related subjects, selected on advisement and with approval of graduate coordinator (note that PHYS 800–PHYS 899 count in this category). *Note: Students who choose PHYS 896EXM (0 units) will take nine units of General Electives; students who choose PSY 898 (3 units) will take six units of General Electives.

Group IV: Thesis and/or Oral Examination (0–3 units)

Code	Title	Units
PHYS 896EXM	Culminating Experience Examination	0
or		
PHYS 898	Master's Thesis and Oral Defense of Thesis	3

Note: Degree total must include at least 15 units from courses numbered 700–899, but no more than 6 units of PHYS 800–PHYS 899 together, nor more than four units of PHYS 730.