ASTRONOMY AND ASTROPHYSICS

Degree Requirements

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (https://gradschool.psu.edu/graduate-education-policies/)

The Master of Science degree requires completion of the Ph.D. course requirements with 3.00 grade point average, passage of the qualifying exam, and submission of an acceptable scholarly paper, completed while enrolled in ASTRO 596.

Code	Title	Credits
Required Courses		
10 3-credit courses, including: [1]		
ASTRO 501	Fundamental Astronomy	3
ASTRO 502	Fundamental Astrophysics	3
at least 4 additional ASTRO 500-level courses		12
4 additional 3-credit courses [2]		12
In addition, the following courses are required:		
ASTRO 590	Colloquium	1
ASTRO 602	Supervised Experience in College Teaching [3]	1
Culminating Experience		
ASTRO 596	Individual Studies [4]	3
Total Credits		**35**

1. No more than 6 credits of ASTRO 596 may be counted toward the ten 3-credit course requirement. If units of ASTRO 596 are used, they must be in addition to those used for the Culminating Experience.
2. The remaining courses may be chosen from 500-level offerings In any of the following fields: Astronomy & Astrophysics, Physics, Statistics, Mathematics, Applied Mathematics, Biology, Chemistry, Astrobiology, Geosciences, Meteorology, Materials Science and Engineering, Computer Science, or one of the Engineering or Information Science and Technology disciplines. One 400-level class may be substituted for a course that Is not one of the ASTRO 500-level courses.
3. Credits for ASTRO 602 cannot be counted towards the ten 3-credit course requirement.
4. M.S. students must submit an acceptable scholarly paper, completed while enrolled in ASTRO 596.

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (https://gradschool.psu.edu/graduate-education-policies/)

A minimum of 37 credits is required for the Ph.D., including:

Code	Title	Credits
Required Courses		
A GPA of 3.2 in the following ten 3-credit courses is required: [1]		
ASTRO 501	Fundamental Astronomy	3
ASTRO 502	Fundamental Astrophysics	3
at least 4 additional ASTRO 500-level courses		12
4 additional 3-credit courses [2]		12
In addition, the following courses are required:		
ASTRO 589	Seminar in Current Astronomical Research	3
ASTRO 590	Colloquium	1
ASTRO 596	Individual Studies [3]	3
ASTRO 602	Supervised Experience in College Teaching [4]	1
Total Credits		**38**

1. No more than 6 credits of ASTRO 596 may be counted toward the ten 3-credit course requirement. If units of ASTRO 596 are used, they must be in addition to those listed below. If units of ASTRO 596 are used, the GPA computed for the GPA > 3.2 requirement will exclude the units of ASTRO 596.
2. The remaining courses may be chosen from 500-level offerings In any of the following fields: Astronomy & Astrophysics, Physics, Statistics, Mathematics, Applied Mathematics, Biology, Chemistry, Astrobiology, Geosciences, Meteorology, Materials Science and Engineering, Computer Science, or one of the Engineering or Information Science and Technology disciplines. One 400-level class may be substituted for a course that Is not one of the ASTRO 500-level courses.
3. For directed research in the second year.
4. Credits for ASTRO 602 cannot be counted towards the ten 3-credit course requirement.

The qualifying examination is a written examination covering any area of astronomy. Students who fail the examination may make a second attempt. At the Comprehensive Examination, the student presents a significant body of original research conducted at Penn State. This Examination tests the student's mastery of the chosen field of research. The student prepares an extended written report and oral presentation, and answers questions on the research and closely related areas. Graduation requires the completion of a dissertation of original research and a final oral examination (the dissertation defense). To earn the Ph.D. degree, doctoral candidates must write a dissertation that is accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.