Astrophysical Sciences & Technology PhD

Semester Core and Track requirements

Credit and Dissertation Requirements
Students must earn a minimum of 60 credits in total, consisting of at least 27 course credits and at least 24 research credits. The PhD Qualifying Exam must be passed before the end of year 2 and includes a written exam based on the common core and an oral exam based on a 2-semester research project (minimum 6 research credits). Students must complete and defend a research dissertation.

Common Core
All students are required to complete 2 semesters of Graduate Seminar (counted towards research credit) and 4 core courses:
- ASTP-610 Mathematical Methods for Astrophysics or ASTP-611 Statistical Methods for Astrophysics
- ASTP-613 Astronomical Observational Techniques
- ASTP-615 Radiative Processes
- ASTP-617 Astrophysical Dynamics
Students may take either ASTP-610 or ASTP-611 to fulfill the core requirement.

Scheduling
The core courses ASTP-613, 615 and 617 will be offered annually. All other AST courses will be offered bi-annually.

Program Tracks and Concentrations
The program has three tracks.

Astrophysics
In addition to the core courses, a student would typically take the following:

- COS-ASTP-730 Stellar Structure & Atmospheres
- COS-ASTP-740 Galactic Astrophysics
- COS-ASTP-750 Extragalactic Astrophysics

In addition, the student must take at least 2 electives selected from other AST courses, or appropriate courses offered by other RIT graduate programs.

Computational Astrophysics
In addition to the core courses, a student would typically take the following:

- COS-ASTP-610 Math. Methods for Astrophysics (as core)
- COS-ASTP-611 Statistical Methods for Astrophysics
- COS-ASTP-720 Computational Methods for Astrophysics
plus at least 3 electives selected from other AST courses, or appropriate courses offered by other RIT graduate programs.

A student in this track may also pursue a concentration in General Relativity. The required courses in this case are:

- **COS-PHY-611** Classical Electrodynamics I
- **COS-PHY-612** Classical Electrodynamics II
- **COS-ASTP-760** Intro to Relativity & Gravitation
- **COS-ASTP-861** Advanced Relativity & Gravitation

and either

- **COS-ASTP-611** Math. Methods for Astrophysics (as core)
- **COS-ASTP-720** Computational Methods for Astrophysics

or

- **COS-ASTP-611** Math. Methods for Astrophysics
- **COS-ASTP-611** Statistical Methods for Astrophysics (as core)

In addition, the student could take up to 3 electives selected from other AST courses, or appropriate courses offered by other RIT graduate programs.

**Astronomical Instrumentation**

In addition to the core courses, a student would typically take the following:

- **COS-IMGS-XXX** Principles of Solid State Imaging
- **COS-IMGS-XXX** Design and Fabrication of a Solid State Camera
- **COS-IMGS-XXX** Testing of Focal Plane Arrays

In addition, the student must take at least 2 electives selected from other AST courses, or appropriate courses offered by other RIT graduate programs.