

Course Planner for Entering Graduate Students Fall 2014

Candidates for a PhD in Astronomy and Astrophysics should complete one core course in astronomy, at least five electives in astronomy, at least one graduate physics course, and should participate every year in the Journal Club. This guide is developed for use by you and your academic advisor in preparation of your **Study Plan** and eventual **Study Card** submission.

Astronomy Core Course: All students should complete and obtain a satisfactory grade (A or B) in Astronomy 200: Radiative Astrophysics

Astronomy Electives: Students are expected to obtain a satisfactory grade (A or B) in at least five of the following graduate level electives offered by the Astronomy department:

- Astronomy 200: Astrophysical Fluid Dynamics
- Astronomy 189: Exoplanet Systems
- Astronomy 193: Noise and Data Analysis in Astrophysics
- Astronomy 201a: Stellar and Planetary Astrophysics
- Astronomy 201b: Interstellar Medium and Star Formation
- Astronomy 202a: Galaxies and Dynamics
- Astronomy 202b: Cosmology
- Astronomy 215hf: Topics in Contemporary Astrophysics
- Astronomy 218: Radio Astronomy
- Astronomy 219: High Energy Astrophysics
- Astronomy 231: Optics for Astronomers
- Astronomy 251: Quantum Mechanics for Astrophysics
- Astronomy 253: Plasma Astrophysics

One of the five astronomy electives may be replaced with a course of equivalent intellectual substance in applied mathematics, computer science, physics or planetary sciences at the discretion of the DGS.

Graduate Physics Course: Knowledge of physics is very important in astronomy and astrophysics. As a minimum, students are expected to obtain a satisfactory grade (A or B) in one of the following courses:

- Physics 210: General Theory of Relativity
- Physics 251a: Advanced Quantum Mechanics I
- Physics 251b: Advanced Quantum Mechanics II
- Astronomy 251: Quantum Mechanics for Astrophysics

Other 200 level courses in Physics or Applied Mathematics may be substituted with the permission of the DGS.

Journal Club: Astronomy 301hf, Journal Club, meets weekly. This course is intended as an opportunity for substantive discussion, as a venue for students to find out about research activities, and as a forum to foster interaction between students and faculty. Students must register for the course every year, and will be expected to make one presentation each year except in their first and last years.

Use the following table to select suitable courses

Semester	Course
Fall 2014	* Astro 200: Radiative Processes in Astrophysics \$ Astro 201a: Stellar and Planetary Astrophysics \$ Astro 251: Quantum Mechanics for Astrophysics # Phys 210: General Theory of Relativity # Phys 251a: Advanced Quantum Mechanics I * Astro 301h Journal Club
Spring 2015	\$ Astro 189 Exoplanets \$ Astro 193: Noise and Data Analysis in Astrophysics \$ Astro 201b: Interstellar Medium and Star Formation \$ Astro 231: Optics for Astronomers * Astro 301h Journal Club
Fall 2015	\$ Astro 202a: Galaxies and Dynamics \$ Astro 218: Radio Astronomy # Phys 210: General Theory of Relativity # Phys 251a: Advanced Quantum Mechanics I * Astro 301h Journal Club
Spring 2016	\$ Astro 151: Astrophysical Fluid Dynamics \$ Astro 202b: Cosmology \$ Astro 219: High Energy Astrophysics \$ Astro 253: Plasma Astrophysics * Astro 301h Journal Club

* Required Astronomy Course

\$ Optional Astronomy Courses (Choose at Least 5 Courses)

Graduate Physics Courses (Choose at Least 1 Course)

For exceptions, please contact:

Director of Graduate Studies: John Johnson jjohnson@cfa.harvard.edu