INTRODUCTION TO THE HARVARD ASTRONOMY GRADUATE PROGRAM

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astronomy.fas.harvard.edu/graduate-program

Stages Towards PhD

- Coursework
- Placement Exam
- Research Project
- Teaching
- Thesis Research

Coursework

- Must complete
  - Minimum of Seven Courses
  - Astronomy: 1 Core +5 Electives
  - Physics: 1 Elective
  - Plus Journal Club: Every Semester
- Finish coursework by End of 2nd Year

Semester	Course
Fall 2014	* Astro 200: Radiative Astrophysics * Astro 301hf: Journal Club $ Astro 201a: Stellar and Planetary Astrophysics $ Astro 2xx: Order of Magnitude Astrophysics # Astro 251: Quantum Mechanics for Astrophysics # Phys 210: General Theory of Relativity # Phys 251a: Advanced Quantum Mechanics I
Spring 2015	* Astro 301hf: Journal Club $ Astro 189: Exoplanet Systems $ Astro 193: Noise and Data Analysis in Astrophysics $ Astro 201b: Interstellar Medium and Star Formation $ Astro 231: Practical Optics for Astronomers
Fall 2015	* Astro 301hf: Journal Club $ Astro 202a: Galaxies and Dynamics $ Astro 218: Radio Astronomy # Phys 210: General Theory of Relativity # Phys 251a: Advanced Quantum Mechanics I
Spring 2016	* Astro 301hf: Journal Club $ Astro 151: Astrophysical Fluid Dynamics $ Astro 202b: Cosmology $ Astro 219: High Energy Astrophysics $ Astro 253: Plasma Astrophysics

Placement Exam

- Must pass a written **Placement Exam** in **~November 2014**
- Tests basic knowledge of **Astrophysics**
  - Shu: The Physical Universe
  - Carroll & Ostlie: Introduction to Astrophysics
- A student who fails this exam needs to pass an **Oral Exam** focused on areas where the student showed weakness

Research Project

- Each student must complete and defend a **Research Project**
- **Qualifying Step** before beginning PhD research
- Generally should **Complete Research Project by Summer of Second Year**

Research Project

- Initially, each student is assigned an **Academic Advisor** to help with courses, etc.
- **1st Year, Fall Semester**: Look around for an Interesting Topic and a **Research Advisor** for the Research Project
  - Entirely the student's choice
- **Begin Research immediately**
- Submit Research Project Proposal no later than **May 1 2015**
- **Year 2:** Complete Research Project. Finish no later than **Summer 2016**

Teaching

- Must teach **Two Sections** as a Teaching Fellow/Assistant
- Ideally done in the **2nd year**
- Considered part of your graduate school training
- Additional sections of teaching possible with permission…

PhD Thesis Research

- Begin **PhD Research** after Research Exam
- Pick a New Advisor, or continue with Same Advisor --- entirely up to the student
  - Submit Thesis Proposal
  - Regular meetings of Thesis Advisory Committee
  - After completing research, write PhD Thesis, give PhD Public Talk, and defend PhD Exam
  - Walk out with a Harvard PhD in Astronomy and Astrophysics (no better degree in the world!!)

Time Line

Fall 2014	Coursework Placement Exam Look for Research Advisor
Spring 2015	Coursework Begin Research Project
Summer 2015	Research Project
Fall 2015	Coursework Teaching Research Project
Spring 2016	Coursework Teaching Research Project
Summer 2016	Complete Research Project Research Exam
Fall 2016 and Later	PhD Research