Department of Astronomy
Harvard University

Paperclip rather than staples preferred

Study Plan for First Year Graduate Students

Your Name: _____ Year: _____

Your Academic Advisor: _____

The purpose of this study plan is to aid you in planning your coursework for the first two years and to allow the department to assess your academic needs. The plan should be discussed with and approved by your academic advisor **before September 9** when all advisors are required to log in and approve your Crimson Cart for fall semester. It may be helpful to discuss your options with other graduate students or your mentor. The numbered questions contained here should be answered carefully, as they are the basis upon which your advisor may make recommendations to you.

Your Study Plan is not strictly binding, but if you decide to change course selection in the Spring semester, you should discuss this with your advisor before registration.

Please identify a primary field of interest (this will be added to your profile on the Department website but can be edited anytime):

I. General Background Requirements

The Committee on Academic Studies may review the transcripts you submitted with your application at its first meeting each academic year. This procedure is supplemented by this information:

1. Astrophysics Inventory

Many students admitted to the Harvard Astronomy graduate program were physics majors in college, and it is difficult to assess their background in classical aspects of astronomy, especially their knowledge of astronomical terminology. First year students will participate in a self-assessment inventory and oral exam in the Fall semester to assist the committee in ensuring that you have sufficient understanding of the broad field generally. This inventory will cover the basic concepts/core of Astronomy and Astrophysics that students coming from Physics or other disciplines might not know (magnitude and coordinate systems, flux definitions, elementary galactic structure, cosmological principles, etc.).

More information is available here:
http://astronomy.fas.harvard.edu/placement-examination

2. Research Self-Assessment

A note regarding sufficient preparation to begin research work can be found here: http://astronomy.fas.harvard.edu/physics-background

In what areas do you think you may have deficiencies?

How would you propose to remedy such deficiencies?

3. Computer Programming

Although not a formal requirement, every student is expected to be familiar with computer programming, at least on an elementary level. Typical minimum level of proficiency is an ability to write a simple Python, IDL, MATLAB, FORTRAN or C program for performing arithmetic operations, sorting data or integrating simple equations.

Do you feel that you are familiar with programming at that level?

Which programs do feel confident using for basic research?

If you feel that you need to learn specific programming skills, either on your own or by taking formal courses, how do you plan to accomplish this?

II. Course and Teaching Requirements

The course requirements for your PhD program are described below and online here: http://astronomy.fas.harvard.edu/astrocourses

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 Journal Club. Details follow.

1. All students should complete and obtain a satisfactory grade (A or B) in:

- Astronomy 200: Radiative Astrophysics

2. In addition, students are expected to obtain a satisfactory grade (A or B) in at least five of the following graduate level electives offered by Astronomy and other departments:

- Astronomy 201: Astrophysical Fluids & Plasmas
- Astronomy 202a: Extragalactic Astronomy & Cosmology I
- Astronomy 202b: Extragalactic Astronomy & Cosmology II
- Astronomy 203: Interstellar Medium & Star Formation
- Astronomy 204: Stellar Astrophysics
- Astronomy 209: Exoplanet Systems
- Astronomy 210: Observational Astronomy (under development)
- Physics 210: General Relativity
- Data Analysis (Physics 201 or Applied Math 207 but not both)

3. Each student is expected to complete for credit one 200-level course outside the department. Known as the Practical Elective, this course ideally would pertain to a student's research field of interest or assist the student in furthering research skills in such areas as data analysis, engineering, geology, chemistry or biology. [Note: the three non-Astronomy courses listed as electives above cannot be used to meet this requirement.] Your advisor must approve your choice of the Practical Elective.

4. All students, independent of their financial support, must teach at least two semesters as part of their educational requirements. First year students may **not** serve as TF's, unless they receive permission from their advisor. Students with an NSF scholarship are typically not allowed to teach during their first year, per NSF rules, although exceptions can be made in particular circumstances.

III. Course and Teaching Plan

Please check or list below the courses you intend to take during your first two years (i.e., four semesters). Check Astro 300 (research time) and indicate the number of units as needed to add up to 16 units. You should write in courses from other departments and include the number of units for each. When you teach, you will select appropriate number of units for Astro 301 (usually 4).

2019 Fall	2020 Spring	2020 Fall	2021 Spring
☐ Astro 200 (4)	☐ Astro 202b (4)	☐ Astro 204 (4)	☐ Astro 203 (4)
☐ Astro 202a (4)	☐ Astro 210 (4)	☐ Physics 210 (4)	☐ Astro 201 (4)
			☐ Astro 201 (4)
		☐ Astro 301 (4)	☐ Astro 301 (4)
☐ Astro 300	☐ Astro 300	☐ Astro 300	☐ Astro 300
Units: 4 8 12	Units: 4 8 12	Units: 4 8 12	Units: 4 8 12

IV. Research Project

Normally, students look for a research advisor and research project during their first year, and begin work on the project at the start of their second semester. Officially, a student must decide on their research advisor by the end of the spring semester and should forward the name of the advisor to the Department Office. The selected research advisor then becomes the student's academic advisor as well. More information about research projects is available here: http://astronomy.fas.harvard.edu/research-project.

Do you have any thoughts about what kind of project you might wish to pursue or with whom?

V. Public Outreach Project

This requirement of our PhD program is usually implemented later in your career here at Harvard. However, we list it here so that you can start thinking about what you might wish to do. Learn more here: http://astronomy.fas.harvard.edu/public-outreach-project

Signatures

_____ _____

Date Signature of Student

I have discussed this study plan with the student and I approve it.

_____ _____

Date Signature of Adviser

This signed form should be turned into Robb in (P-241) promptly by October 1. Paperclips rather than staples are HIGHLY appreciated.