ASTR 192: Pre-Major in Astronomy Research Seminar

Class times: MWF 11:00-12:20
Classroom: PAB B356
Instructor: Kristen Garofali
Email: garofali@uw.edu
Office: PAB 317
Office Hours: Monday 2:30-3:30, Friday 3:30-4:30
Materials: Lab notebook, pen/pencil, calculator, access to a computer outside of class.

Introduction

The goal of the Pre-MAP program is to give students with an interest in science a chance to do real scientific research while providing the most essential tools necessary to get started. After you have completed your project for Pre-MAP, you will have the skills, experience, and network of contacts necessary to continue in science research if you wish. In any case, we hope you gain a clear idea of how science is done and the perspective to communicate it well to others.

In addition to the TA for this class, there will also be an academic mentor. The academic mentor's job is to be a resource for you throughout the academic year—that means he is available even after Pre-MAP is over! He can help you with homework, picking out which classes to take, or even just general advice about how to navigate your undergrad. In addition to being present for many of the class sessions to help with in-class assignments, the mentor will also hold regular office hours where you are free to drop in with any questions. Think of the mentor as an all-purpose TA for your undergrad career—use him to chat about anything!

Class Structure

The first half of the seminar will consist primarily of developing the basic toolset necessary to begin research. This includes:

- ***Computer Programming:*** We will develop essential competencies in operating in a UNIX-based environment. We will then learn some basic programming using **Python** through guided tutorials and exercises.

- ***Understanding Science and Reading Scientific Papers:*** We will read peer-reviewed articles in scientific journals. Through these we will better understand the scientific process and communicating scientific results.

The second half of the seminar will be primarily guided research with your mentor and your class partner. There will also be presentations to help with your future professional development.

- ***Research Projects:*** There are several projects proposed by UW Astronomy/Astrobiology faculty, post-docs, and graduate students. You will select projects within this pool that interest you the most and will then be assigned a project in teams of two. Each team will work diligently with their research mentor, who will guide you as you make progress on your project.

- ***Research Presentations:*** One of the most import roles of a scientist is to communicate your research to your colleagues as well as the broader public. At the end of five to six weeks working with your mentors, you will give a 10-minute presentation to the Astronomy Department as a team with your partner. This is a great opportunity to enhance your ability to communicate about your science!

- ***Professional Development:*** We will have a few presentations on topics like careers in science and how to apply for internships. This will give you a head start on pursuing opportunities after the seminar is over. We will also do **lab tours** to show you some opportunities on campus for undergraduate research.

Things you will be graded on

- ***Assigned work:*** All work must look professional, i.e. clean white paper without torn edges, stapled, and preferably, all text typed. If you don't type the text, be sure you write as neatly as possible. Illegible work will not be graded.

- ***Programming Exercises/In-Class Assignments:*** Grading criteria will come with each assignment.

- ***Reading/Writing Assignments:*** Grading criteria will come with each assignment.

- ***Research:*** Your mentor will primarily decide what you will be graded on and what grade you receive; I will make sure all the grading schemes are equal.

- ***Research Presentation:*** The end of the quarter 10-minute research group presentation, the grading rubric will come closer to the date.

Item (total #)	**Total % of Grade**
Programming Exercises (4)	20%
Writing Assignments (6)	20%
Research (1)	40%
Research Presentation (1)	20%

"Final Exam"

There is no final exam in this class. However, you are **required to attend an end-of-course evaluation** that will take place during finals week (time TBD). Your feedback will help make Pre-MAP even better!

Tentative Schedule

This is the broad overview of this class. Specific readings and homework assignments will be handed out each week and posted online.

Week	Topics Covered
Week 1	Introductions
Week 2	Unix, Emacs, Project Pitches
Week 3	Python
Week 4	Python
Week 5	Python
Week 6-10	Research
Week 11	Research Presentations
Week 12	Group Evaluation (in lieu of Final)

Important Things That Need to be in a Syllabus

- ***Late Policy:*** No late homework will be graded.

- ***Extra Credit:*** There will be no extra credit.

- ***Plagiarism:*** Please do your own work! *Any plagiarized, cheated, or improperly collaborated work submitted will receive a zero.* Any person involved with such a submission may also automatically fail the course. Simply put: do not turn in anything that is not from your own mind without giving proper credit.