ASTR 192: Pre-Major in Astronomy Research Seminar

Class times: MWF 11:00-12:20
Classroom: PAB B356
Instructor: Eddie Schwieterman
Email: eschwiet@astro.washington.edu
Office: PAB B325
Office Hours: Tuesdays 11:00 a.m. – 12:00 and Thursdays 3:00 – 4:00 p.m. or by appointment
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.

Class Structure:

The first half of the seminar will consist primarily of developing the basic toolset necessary to begin research in astronomy (and/or astrobiology). 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** or **IDL** through guided tutorials and exercises.

Understanding Science and Reading Scientific Papers

We will read both popular science articles and peer-reviewed articles in scientific journals. Through these media 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 as a team with your partner. This is a great opportunity to enhance your scientific communication ability! Your talk will have a substantial audience (faculty, researchers, graduate students, etc.). Don't worry, though, there will be plenty of opportunity for practice along the way!

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: 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. *If I can't read it, I won't grade it.*

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

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

Lab tours: We will have a few tours of different labs on campus planned during the quarter. This will help give you an idea of what other research opportunities there are on campus. You are *required* to attend at least one and ask a question during the tour. You are *highly encouraged* to attend as many as you can.

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.

How you will be graded

Item (total #)	**Points/Item**	**Total**
Programming Exercises (4)	20	80
Writing Assignments (7)	10	70
Lab Tour (1)	10	10
Research (1)	100	100
Research Presentation (1)	40	40
Total		300

Each point you earn is equivalent no matter which way you earn it. If you divide your point total by three, you will have your total grade percentage.

Pre-MAP Evaluation: There is no final exam in this class. However, you are required to attend an end-of-course evaluation that will take place on Wednesday December 10 in PAB 356A (the Reading Room) from 2:30-4:20 p.m. 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, Scheduling, Logistics
Week 2	Unix, Emacs, Project Pitches
Week 3	Python or IDL
Week 4	Python or IDL
Week 5	Finish Python & IDL, Begin Research
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.