ASTR 8500 (O'Connell) Spring 2024

Professional Development For Astronomy Graduate Students

ASSIGNMENTS

There will be four assignments this semester. Only one will involve a significant written submission, but three will involve a presentation to the class using PowerPoint or the equivalent.

You should think of your participation in this course not just as a requirement to be discharged but as an opportunity to build a set of reference materials on the profession that will be useful to you, other UVa graduate students, and potentially to the larger astronomical community as well.

A. Future of US Astronomy, A Debate

Dennis Overbye, one of the best popular science writers, suggested in a 2020 New York Times column that US astronomy might be on the verge of "losing the universe" because it is unlikely to be able to compete directly with the European Extremely Large Telescope (39-m aperture) now under construction in Chile. Overbye's article is linked **here**.

The US astronomical community has now produced a consensus set of recommendations to its funding agencies for the coming decade in the form of the Decadal Survey report ***Pathways to Discovery in Astronomy and Astrophysics for the 2020s***. The Survey does not recommend building a telescope that would directly compete with the EELT.

To provide some context for topics covered during the rest of the semester (e.g. shared facilities, funding sources for astronomy, major initiatives), we will hold a **discussion and debate** over the Overbye article during the **February 6 meeting**.

All students are asked to read the Overbye article and the relevant sections of the Decadal report (Sec 7.6.1.1-7.6.1.2 and Appendix K) and to skim the main recommendations of the report. You might also read the public commentary attached to the Overbye article to get a feel for general opinion (some informed, some not) on the subject.

Then we ask that **students organize themselves** into **two teams of 5-6 each**: one to argue

in favor of Overbye's claim and one to oppose it. For definiteness, we will reformulate his claim as follows:

> ***"Recommendations from the 2020 Decadal Study do not include a ground-based optical telescope larger than the European Extremely Large Telescope. This will place US astronomy at a significant disadvantage over the next 20 years."***

We will spend about 20 minutes on the debate.

Team members don't necessarily have to agree with the point they are defending. Each team should have an **organizer** who will take the lead in seeing that the various aspects of the case are covered by the team. All team members are expected to take part in the debate, and teams should anticipate the main points of the other side and formulate rebuttals to them. No A/V presentations are expected.

To some extent you will be recreating the deliberations that took place in 2020-2022 Decadal Survey committees.

B. Faculty Top-10 Advice

Working in teams of 3-4, students will **interview** as many faculty and senior researchers at UVa and NRAO as possible over a ~2 week period to obtain their best advice for graduate students in the form of the "top 10 things that grad students should know" in confronting their careers, preferably in the context of the recommendations from the 2020 Decadal survey. Interviewees aren't obligated to offer you 10 suggestions, but they have been alerted to your visits, and we hope they will be happy to participate and will have thought about the topic ahead of time.

The teams will divide up the interviewees as desired. Each team will consolidate the advice they receive into a **top-10 list**, which they will **present** to the class in a brief (~10 minute) talk. The class will consider and discuss all the presentations and arrive at a final "top-10" **consensus list**.

We will need **one (volunteer) student** to act as coordinator and help groups pick interviewees without duplications, provide contact information, etc.

C. Proposal to the Virginia Space Grant Consortium

General considerations and advice concerning writing good proposals will be covered in a class presentation. As a realistic exercise, each student will develop and write up a **proposal** to support their ongoing ASTR 9995 research project in the form expected by the Virginia Space Grant Consortium Graduate Research Fellowship program. That will include writing a resume (or "CV"). Writeups will be submitted for grading. Each student will also **present** a brief (10 minute) summary of their proposal to the class, including a PowerPoint or equivalent

presentation.

Details on writing the proposals are given here.

In preparing your presentation, you might consult the resources and suggestions under item (G) of the ASTR 8500 Presentations page on giving good talks. The Susan McConnell video is especially helpful.

D. Presentation on Optional Topic

Each student will select an optional topic related to the course for a 10 minute **presentation** during the last third of the semester. We will provide a list of possible topics, but students can suggest others.

After presentations made under items (C) and (D), the audience will provide constructive feedback using **written evaluation forms**. Copies (PDF files) of the optional topic presentations, including lists of resources, will be posted on the ASTR 8500 public website, so design them for a wider audience.

Return to home page

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