PHYS 480/581 - Planetary Astrophysics Proposal Instructions

Fall 2024

Instructions:

- Each student is expected to prepare a "proposal" for a project addressing an open question in planetary astrophysics. Your proposal could describe (feasible) observations, a new theory, or even a new instrument that would enable previously unattainable observations. **Set aside a block(s) of time to just think about and research ideas.**
- Proposal length is 4 pages for undergraduate students and 6 pages for graduate students, **plus** figures and references. Use 1 inch margins, single-spaced, and written in Times fontsize 12 (or equivalent).
- You will be required to submit an abstract three weeks before the proposal will be due. The abstract will count for 1/6 of the proposal grade (5% of the final grade). Your abstract should include a summary of the problem you propose to solve with motivation and description of the problem, a description of the key objectives, and a brief outline of the method(s) you plan to use to solve the problem. It should be about 0.5-1 page long.
- You can find some examples of strong proposals here. We will also dissect some examples in class.
- You have the option to submit a proposal partway through the semester (due after fall break), at the end of the semester, or both. If both, then the best grade of the two will count.
- Students will also be expected to review some of the proposals submitted (anonymously) and provide feedback, similar to an actual proposal review panel. Details to come.

Some ideas for where you may draw inspiration from:

- In-class discussions and lectures (keep your ears open for open problems in planetary and exoplanetary science that I sometimes mention in class).
- The discussion/conclusion sections of the journal club papers we read for class: often authors will describe possible future directions of research, though make sure to check first whether that research has already been done (possible, especially for the older journal club papers).
- What you discover while working on the homework essay questions.
- Start with a topic of interest to you (e.g. Neptune, magnetic fields, super-Earths…) and do some reading to see what we *still* don't understand about that topic.

Due dates for mid-semester submission:

- To submit or not to submit: Wednesday, September 25
- Abstract due: Monday, October 7
- Proposal due: Monday, October 28

Due dates for end-of-semester submission:

- To submit or not to submit: Monday, November 4

- Abstract due: Monday, November 11
- Proposal due: Monday, December 2

Proposal review instructions for mid-semester proposals:

On the due date of the mid-semester proposals (Monday, 10/28), every mid-semester submitter (4 in total) will be assigned as **primary reviewer** to a mid-semester proposal, with the following responsibilities:

- read the proposal by Wed., 10/30
- come to Wed. class prepared to summarize the proposal, and give identified strengths and weaknesses - **4 to 5 minutes**
- prepare a 1-2 page written evaluation of the proposal, incorporating also comments from the secondary reviewer and the rest of the class, by Wed., 11/6, emailed to instructor.

On the due date of the mid-semester proposals (Monday, 10/28),, 4 of the 5 remaining students will be assigned as **secondary reviewer** to a mid-semester proposal, with the following responsibilities

- read the proposal by Wed., 10/30
- come to Wed. class prepared to summarize the proposal, and give at least one identified strength and weakness that the primary reviewer did not mention - **2 to 3 minutes**
    - you can do this either by consulting with the primary reviewer between Monday and Wednesday, or by preparing enough strengths and weaknesses to ensure at least one of each will be new.

Every student is expected to read every proposal at least cursorily and come prepared to participate in the discussion (aimed at ~10 minutes/proposal).