Astronomy 303: James Webb Space Telescope Call for Proposals

We invite scientists to participate in Cycle 0 of the James Webb Space Telescope (JWST). JWST is going to revolutionize many fields in astrophysics, but we would like to focus on a few of the most exciting. Please consider (a) detecting the first galaxies (stars, black holes); (b) characterizing extrasolar planets (their atmospheres or the direct detection of new planets); (c) thinking about how star formation works in the Milky Way.

Abstract deadline: Please discuss your plan (have a short outline or abstract ready) with Jenny by **Oct 26**. In this plan, we would like to see the theme you are interested in, what instrument(s) you would use, and bullet point arguments for why this is an important problem to solve in astrophysics. See the article "How to craft a well-argued proposal" by Julianne Dalcanton (linked to the web-page) for ideas. As an aside, Julianne was a graduate student in our department.

Draft feasibility calculation: **Nov. 19**, please think through the exposure time calculation you would need to do to justify your experiment. Feel free to schedule another meeting with Jenny before submitting this draft, or we can discuss it together afterwards. This calculation will form the core of your argument that the proposal is feasible.

Proposal deadline: **Jan. 7**, the first day of reading period. At this point, Jenny will form committees of students to review the proposals. She will send all reviewers copies of the proposals that they need to review. Please read your proposals and write short reviews describing what you did and did not like about each proposal.

Review Process: **Jan. 14** We will meet on Jan 14 for a mock Telescope Allocation Committee meeting, in which we will peer review (anonymously) each others' proposals. Each student will be asked to read five proposals as part of the reviewing process. This will happen over reading period.

Requirements: Total page limit: 5-7 pages, not including figures and references. Spend roughly 2-3 pages on scientific background (this will be longer than a real proposal). Spend roughly a page on Experimental design. Spend roughly a page on Technical Justification (this is where you present an exposure time calculation based on the sensitivities in the materials provided below). Please hand in **two copies** of the proposal, and include a cover sheet with your name so that we can hand out the proposals anonymously to your peers.

Content Guidance:

There are a large number of instruments/capabilities that will be available with JWST. We suggest that you focus on one of the two instruments, using their **imaging** capabilities:

- NIRCam
  http://www.stsci.edu/jwst/instruments/nircam/
  http://www.stsci.edu/jwst/instruments/nircam/docarchive/NIRCam-pocket-guide.pdf
- MIRI
  http://www.stsci.edu/jwst/instruments/miri
  http://www.stsci.edu/jwst/instruments/miri/docarchive/miri-pocket-guide.pdf

Criteria for judging proposals: These are the criteria given to all *HST* TAC members, and we will follow these guidelines:

- The scientific merit of the program and its potential contribution to the advancement of scientific knowledge
- The program's importance to astronomy in general
- The extent to which the proposal demonstrates sufficient understanding to assure a thorough analysis of the data
- A demonstration that the unique capabilities of JWST are required to achieve the science goals of the program

Important elements to include in the proposal: Explain why your science question is of pressing interest to astronomy. Justify that the unique combination of capabilities of the JWST – high angular resolution, NIR-MIR wavelength coverage, and amazing sensitivity – are required for your experiment. Also, comment on how you selected your target or targets and why you think the sample size is sufficient to address your science question.