

Guidelines for Final Term Paper in Astronomy 2020

Paper Due: December 7, 2020 by 5 pm

In lieu of a final exam, you are requested to write a term paper worth 20% of your final grade. You will pick one of the topics in *Space Astronomy & Space Exploration* listed below and compose a five-page paper with references. Here are your guidelines for the paper:

- The purpose of this paper is to *integrate what you have learned about NASA, space astronomy, and space exploration this semester*. As such, you should refer in your paper to class notes, class readings, and class discussions, where relevant, as well as external references.
- Please choose one of the topics below for your paper:
 - Compare and contrast the “space race” between America and the USSR in the 1960s with today’s “competition” between the U.S. and Russia and China. What is similar and what is different?
 - Pick a science goal that can be advanced through research on the Moon. Describe why the science is compelling and what infrastructure, using commercial landers and/or Project Artemis, is needed to investigate the science topic.
 - Debate the pros and cons of relying on reusability for rockets, crew vehicles, and landers. As part of your paper, discuss why the Space Shuttle failed to meet its main goal of reducing launch costs using a reusable lifting body. What is different today?
 - What would a “search for life” mission look like on either Mars or Europa (pick one)? Why did you select one and not the other? Describe the kind of spacecraft, sensors, sample collectors, etc. that would be needed to definitively find proof (or not) for life.
 - You are a space entrepreneur. Pick a technology to propose for a space-related start-up company. Build a *basic business plan* for your company including a market strategy and sources of investment. The business plan should include a target market, costs/benefits of the technology, market growth potential, and opportunity for profitability.
- Your grade will be based upon the quality of your research and references, the logic and flow of the paper (did you make a convincing argument for your position?), integration of the theme of your paper with class topics, and good grammar with complete sentences and paragraphs.
- You are expected to cite at least three external references, NOT including Wikipedia, along with class notes and readings.
- Any text taken verbatim from references MUST be in quotations. Failure to do so or any form of plagiarism is a CU honor code violation which will be reported. You will receive an F for the paper. If in doubt, use quotation marks and/or ask me. Do not take a risk.
- Maximum length is 5 pages, single-spaced, 12 pt font, 1-inch margins. References are in addition to the five pages of text.