UGS 303 - EXTRATERRESTRIAL LIFE
COMMON PROBLEMS ON THE PAPER

(1) Introduction
- The introduction has three roles: to capture the reader's attention, state your viewpoint, and provide any background material that your reader needs in order to understand the paper and thesis.
- Capturing the readers attention simply means piquing their interest - make them think "oh, that sounds interesting". Don't overdo it.
- Make sure your thesis (see below) is stated in your introduction.
- Only include background material that your reader needs to understand the topic. Avoid inclusion of trivia.

(2) Thesis
- The thesis is not the question you would like to answer, it is the statement that you would like to make. Be aware of the difference between a research question and a thesis. See PSM 25, 29a.
- Don't wait until the conclusion to state your thesis. Make sure the thesis is in the introduction.
- If you explicitly state your research question in the introduction, make sure to answer it as well.
- e.g. If your question is "Was the Kepler mission worthwhile?" and your answer is 'no', then state within the introduction something like "The Kepler mission was a waste of resources".

(3) Body of text
- Don't include unimportant details. Focus the paper on supporting your thesis.
- Integrate and comment on material from your sources; don't let them stand on their own. See Pocket Style Manual (PSM) 31c.
- Each paragraph should generally conclude with your own words; don't conclude with someone else's, i.e. the final sentence should not require a citation.

(4) Conclusion
- Don't start with "In conclusion". Let the first statement stand on it's own.
  - "In conclusion, the earth really is round."
  - "The earth really is round."
- Use the conclusion to summarize the paper. Restate the thesis and some specific details about the support that you have presented.

(5) Citations
- Make sure you use in-text citations and a bibliography. These counted for a full grade for this draft. A final paper without citations or bibliography is plagiarism and will result in referral to the Dean.
- Make sure you include all of the citations that you need. For each statement that you make, evaluate whether your audience is expected to know that information without looking it up. If they cannot, then include a citation.
- Any piece of information that you have gotten from an outside source (i.e. you did not figure it out on your own) must be cited.
- Any statement in the paper which does not have a citation is attributable to you as the author. Read only the sentences that do not include a citation; are they truly your own work or common knowledge to your audience? If not, add a citation.

(6) Signal phrases and establishing authority
- Signal phrase: "According to ...", "As ... says"
- Don't overuse a single phrase; See PSM 31b, especially pg 115.
- The phrase should cite the author, not the journal, magazine, or institution. The place that the information is written is not an authority.

- Avoid simply using an organization when the author is unknown, e.g. "According to NASA...". Try to be more specific in order to clarify the source of information for the reader, e.g. "According to the NASA *Kepler* website..."
- Introduce the author to give them more credibility. Consider "According to Wolfgang Hillebrandt, thermonuclear supernovae are the result of merging white dwarfs", and "According to supernova researcher Wolfgang Hillebrandt, thermonuclear supernovae are the result of merging white dwarfs". In the first case, Wolfgang could just be some guy off the street. In the second, we can see he probably has some knowledge about the subject.
- In general, don't introduce or refer to people as "scientists". Be specific. What is their field? Someone who studies stars is an astronomer or astrophysicist (the latter is generally preferred); someone studying microbes is a microbiologist. If there is a group of scientists from many fields working together then the use of "scientists" is appropriate.

(7) Using the textbook as a source
- Don't use it, unless it is just a particular phrase you are using for background. Is a textbook whose title is "Extraterrestrial Life" a reliable source for information about the greenhouse effect?
- See Appendix 1 of the textbook (p. 200-203) for a list of better sources.

(8) Fonts, formatting, length
- Use a "normal" margin, font, and line spacing. I read about 40-50 papers. I will notice if you are using something unusual.
- Paper is 4.5-5.5 pages, which means about 1100 - 1400 words.
- The italics used in MS Word, when converted to PDF, seem to come out very strange looking when I print. Be aware that Word and PDF files do not look the same on different computers. For safety, select the "Embed fonts" option when exporting to PDF.

(9) Concision
- Be concise. Don't waste your reader's time. Make every word count.
- Meaningless statements are a common problem. Look for words like 'some', 'most', 'more', etc. Read the sentence without those words; does is still make sense and get the point across?
- Every time you use an adjective or adverb, reread the sentence and make sure that the word is needed and conveys information. Some adjectives and adverbs that usually are not needed: interesting, intriguing, mysterious, special, extraordinary, fascinating.
  - "Most climate scientists agree that fossil fuel use is responsible for climate change."
  - "Climate scientists agree that fossil fuel use is responsible for climate change."
- Be careful not to over-inflate your argument by leaving out adjectives.
  - "Some climate scientists believe that climate change is due to natural forces, such as volcanoes."
  - "Climate scientists believe that climate change is due to natural forces, such as volcanoes."
- Be aware of vague or meaningless statements. These statements need to be eliminated or rewritten to give useful information.
  - "There are some reports that natural processes are responsible for climate change."
  - "According to the IPCC Working Group I, the sun has gotten brighter in the last 300 years, which affects the global climate." (Source: Climate Change 2001: The Scientific Basis, Intergovernmental Panel on Climate Change Working Group I, www.ipcc.ch).

(10) Voice
- Avoid the use of "I". When you use the first person to present an argument you are relying on the reader to give you authority based on your background. For a research paper, the reader should not care about who you are or your expertise; keep them focused on the information and argument that you present.
- Avoid colloquial language, in particular jargon, clichès, and slang. For an academic paper, do not write the same way that you speak. Make sure that the meaning of your sentences are apparent to any reader; try reading each sentence from the perspective of a non-native English speaker.

(11) Commas

- See PSM 17.
- Misplaced commas are a common problem. Try reading the sentence without the phrase that is separated by a comma. Does the sentence make sense?

(12) Quotation marks
- Avoid using quotation marks other than for direct quotes. See PSM 20.
- To denote a special word, use italics rather than quotation marks. In general, avoid even italicizing the word. You only need to do this if you really want the word to stand out. See PSM 23c.

(13) Parenthesis
- Avoid use of parenthesis. Evaluate any parenthetical phrase and decide if it is helpful to the overall statement. If it is not, eliminate it entirely. If you wish to keep the phrase, modify the sentence to include the phrase. You can usually delineate the phrase with commas (see PSM 17f, 21e).

(14) Spacecraft
- Spacecraft names should be in italics, mission names should not. Missions and spacecraft often have the same name so be aware of which one you are referring to. e.g. the *Kepler* spacecraft and the Kepler mission.
- "Spacecraft" is both singular and plural. Do not write "spacecrafts".