

## Math 111 - Sustainability/Energy Paper

Write a 2-4 page essay of the state of the U.S. and World's energy situation, as if you were to submit this to a news magazine (similar to the articles we have looked at in class, but possibly a little longer). Your goal is to write a factually correct essay in an engaging way so that people will want to read it. This is supposed to be a summary of what we know, not merely an opinion article. This essay should include a review of consumption trends and the ramifications of that consumption. The paper should include recommendations for government policy and future directions that should be considered, including a justification for your recommendations. Some guidelines for your 2-4 page paper are as follows:

1. **Organization** There are a number of ways to organize this paper. You might structure the paper by the way the data were organized in the spreadsheet. You might group fossil fuels together, renewable energy together, and then group the other categories. These are just two ideas and there are certainly other ways to organize the paper.

### Checklist

Can you explain simply to someone how you organized your essay (i.e. do you have an outline)?

2. **Quantitative Analysis** You must reference information (projections, rates of change, etc.) from at least 10 of the functions used in class to support your argument. You must use facts based on the quantitative analysis done during the semester to support your essay.

### Checklist

Did you include appropriate current production and consumption numbers and rates of growth?

Did you include appropriate future projections and (in some cases) a range of projected values or possible consequences?

Do all the numbers in the essay have the appropriate units?

3. **Ramifications** We have had articles to read and speakers to help us understand the impact of the current trends. Your essay should include what might happen if the current trends continue. Your essay should include statements such as "If these projections continue for the next \_\_ years we should expect..."

### Checklist

Did you include the possible ramifications of the projections?

4. **Add Something** You must include at least two references beyond the functions and speakers provided in this course. In other words, in developing your essay go beyond the sources that were provided in class. Note that it is appropriate and expected that you would quote a speaker or two, but that this doesn't count as adding something.

### Checklist

Can you tell me quickly what other sources you read?

5. **Style** Do not simply give a laundry list of facts. You must write a compelling and engaging essay to get people to read the essay.

### Checklist

Did you give a draft of your essay to someone not in the class to read to see if it was interesting and engaging?

6. **Introduction and Conclusion** The introduction and conclusion together, without the rest of the paper, should make sense and serve a brief summary of the essay.

### Checklist

Did you give just the introduction and conclusion of your essay to someone not in the class to read to see if it makes sense?

7. **References** First, here is the statement on plagiarism from the student conduct code (7.1.4.1). Any violation of this policy will be forwarded to judicial affairs:

Whether intended or not, plagiarism is a serious offense against academic honesty. Under any circumstances, it is deceitful to represent as one's own work, writing or ideas that belong to another person. Students should be aware of how this offense is defined. Plagiarism is the unacknowledged use of someone else's published or unpublished ideas, whether this use consists of directly quoted material or paraphrased ideas.

Although various disciplines follow styles of documentation that differ in some details, all forms of documentation make the following demands:

- That each quotation or paraphrase be acknowledged with a footnote or in-text citation;
- That direct quotations be enclosed in quotation marks and be absolutely faithful to the wording of the source;
- That paraphrased ideas be stated in language entirely different from the language of the source;
- That a sequence of ideas identical to that of a source be attributed to that source;
- That sources of reprinted charts or graphs be cited in the text;
- That all the sources the writer has drawn from in paraphrase or direct quotation or a combination of paraphrase and quotation be listed at the end of the paper under "Bibliography," "References," or "Works Cited," whichever heading the particular style of documentation requires.

A student is guilty of plagiarism if the student fails, intentionally or not, to follow any of these standard requirements of documentation.

In a collaborative project, all students in a group may be held responsible for academic misconduct if they engage in plagiarism or are aware of plagiarism by others in their group and fail to report it. Students who participate in a collaborative project in which plagiarism has occurred will not be held accountable if they were not knowledgeable of the plagiarism.

What, then, do students not have to document? They need not cite their own ideas, or references to their own experiences, or information that falls in the category of uncontroversial common knowledge (what a person reasonably well-informed about a subject might be expected to know). They should acknowledge anything else.

In this class we will use the bibliography format found at <http://www.ithaca.edu/library/research/turabian.php>. As an example:

As noted in [1], a proof of this was given by Pascal in 1654 by showing that....

According to Hartman, world oil reserves are estimated at about 1 trillion barrels [2].

### References

- [1] A. Beardon, Sums of Powers of Integers, *Amer. Math. Monthly* 103 (1996), 201-213.  
 [2] Hartmann, Tom. "The End of Ancient Sunlight." Yes!, Fall 2004, 13.

You may also use an appropriate method of footnotes. I suggest you take a look at <http://www.ithaca.edu/library/research/writingciting.php> for general information on writing and citing. Ultimately, you must cite any quotes or information from speakers or written sources in some way.

### Checklist

- Are you clear on what is considered plagiarism?
- Did you double check to make sure source and quotes are properly cited?

8. **Grading** While everything above will be considered in grading, there will be three areas of particular importance: mathematical correctness (see 2), understanding of the mathematics (see 3), as well as proper grammar and writing (including 5 and 6).