The Science of Global Warming
Paper due April 18
NatSci102, Spring, 2011, Professor G. Rieke

1. Assignment Summary:

Write a paper on global warming, double spaced, at least three and up to four pages. The paper should have a detailed bibliography (one or two additional pages) with an evaluation of the quality of each source that you have used for input to the paper. At least one source should be a book. The paper will be graded on three criteria: 1.) your logic defending the position you take on the topic; 2.) the quality of your writing; and 3.) your evaluation of the information sources.

2. More Details:

Global warming is one of the great challenges of our time – almost as much a challenge to understand as to figure out what to do about it. Is it really happening? Is it caused by human activity? Is it a minor issue or does it threaten our very survival? Should we learn to live with it or take drastic action? If we are to take action, should we switch to solar power? Nuclear power? Sequester carbon dioxide? Something else?

Imagine that President Obama has just been elected to rule the world and you want to be his top-dog energy/climate science advisor. Your assignment is to weigh the alternatives carefully and to write a paper on the scientific case for (or against) the reality of human-assisted global warming. Because he is extremely busy, the paper should be no more than four pages long, double spaced, with an two pages for a bibliography. Specific guidelines are given below, but a feature of the paper is that you are to use the methods we have
introduced in class to evaluate the kind of information you obtain to base the paper on. If your paper is really good, maybe you will get this high level, powerful, prestigious, and well-paid position!

3. Guidelines for Writing Your Paper:

This assignment requires you to work in an area with conflicting and in some cases misleading information. Your paper will be graded on three criteria:

1.) The quality of the logic you use in describing and defending any position you take in the paper;
2.) The quality of your writing itself, not just simple grammar and spelling but also the organization and clarity with which you express yourself; and
3.) Your use of supporting material.

To start at the bottom, you should use the techniques we have discussed in class and employed in homework to probe the quality of the information you gather. The paper, as with any scholarly work, must have a bibliography of all the works you used in its preparation (although ones you looked at and rejected need not be entered). The works should be listed alphabetically, by first author last name, and at the end of the paper. They should also be cited in the text wherever you use them for a specific source of information given in the text. Please use the citation style guide for the APA (=American Psychological Association), which can be found at http://www.library.arizona.edu/search/reference/citation-apa.html. Although a lot of information for the paper can be found on the web, we require that one of your sources be a book.

A short summary of the citation procedure is that, in the text, the source of information should be indicated with the name of the first author and the year, if there is a single author (Smith 2002). Use the names of both authors if there are two (Smith and Jones 2002), or the name of the first author followed by “et al.” if there are three or more (Smith et al. 2002). The term “et al.” is abbreviated Latin for “and others”. The parentheses can be modified to fit the context. For example, the first case on the citation guide given by the link above might be:
“Townsend (1993) demonstrated that the Medieval economy depended on villages.” or
“The Medieval economy depended on villages (Townsend 1993).”

Unlike most bibliographies, you are also for each item to follow its entry with a statement about whether you think it provides high quality information and why. The “why” can be short – for example, if you are using a news article from Time magazine, just say it is main-stream media that takes responsibility for the accuracy of what it publishes. If you are using an opinion column from a source like Time, however, you need to research the author and describe what you found. If the source is something like the Petition Project web site, you will need quite bit more explanation!!! Be careful here, because the techniques to identify pseudo-science and not get fooled by it are one of the major points of this course and getting things wrong in this area could affect your
grade adversely. A substantial part of your grade for this paper depends on your evaluation of the quality of your sources. This does not mean that they all have to be high-quality --- some topics may depend on using lower quality ones. However, you need to demonstrate that you are highly knowledgeable about the sources. We have provided a separate writeup on how to evaluate material – please read it and use the suggestions to improve your grade.

While we are on the subject of citations, be sure to use them liberally to acknowledge the sources of information and ideas correctly. A lot of what you write is in fact derived from the work of others, and you should be generous in acknowledging their contributions to your own efforts. There are rules to help you remember, like cite someone if you take more than five consecutive words from them (not to do so is the disgusting practice called plagiarism). However, it is better to think of the larger picture. Plagiarism occurs whenever someone steals some else’s idea. For example, the courts have found that software that looks just like someone else’s counts as plagiarism even if the code behind it is different – the interface ideas were stolen. Therefore, whenever you are using some one’s ideas, even if they are put into your own words, give them credit!

So far as item 2 is concerned, good writing is organized simply and written so anyone can understand it easily. A trick that can often reveal bad writing is to read it out loud. If you start giggling at yourself for pompous expressions and overdrawn wording, it is a bad sign. On smaller details, there is not much excuse for bad spelling these days with modern computer-based spell checking. Bad grammar can sneak in only a little more easily. Use the tools available with your word processor to help get the writing up to the mark. Your paper should be written in academic style, which means that it should use relatively formal language (no slang unless it is for specific effect or in direct quotations, for example).

Logic is the big item. You are not going to get far with Super-Pres Obama if your logic is faulty in any way. Thus, we urge you to think carefully before you get committed to writing. Those who leave the assignment to the night before it is due will not have time to get their logic in careful order ---this usually takes a week or more. So get started early and ruminate on the topic until you really know what hangs together logically in your mind. It will help develop the logic if you talk about the topic and argue with your classmates. However, when it comes time to write, you are to do that strictly by yourself – no collaboration or copying!

One point to remember is good logic requires careful separation of different kinds of argument. In this case, you need to distinguish: 1.) is global warming actually happening; 2.) do humans contribute to it; 3.) is the human contribution important; 4.) how will it change in the future; and 5.) what, if anything, should we do about it. These five items start with a pure scientific question, through questions that have to do with the accuracy of scientific models and their ability to predict (something that is less certain than the situation with the first point should be) to pure politics that is outside the realm of science. This paper is to be on the scientific evidence regarding the first four of these questions – leave the politics to the experts in that area.
You are to turn in a printed copy of the paper and to email us a copy in either pdf or WORD format to webacctir@gmail.com. It will be reserved to check for plagiarism using Turnitin! if we are suspicious upon reading the paper.

Here are some excerpts about plagiarism from various UA sites, so you know what to avoid:

**From the library:**

4. **Plagiarism – Don’t Even Think of Doing It!**

Plagiarism – the general practice of making the work of others appear to be yours – is a disgusting thing to do. It also undermines the whole purpose of being at the university, where you are supposed to be learning to think critically and to put your thoughts into your own words.

In science, plagiarism is dealt with particularly harshly, and being caught at it can ruin a career. Avoid plagiarism in writing your papers. Do not copy them from someone else, and if you use more than five words directly from some source, cite the source. You might get away with it, but if you get caught as a minimum you will get a zero on the paper, which will drop your grade for the course by nearly two letters! For more serious violations (for example, turning in a paper already used for another course, copying a paper from someone else, or lifting major parts (or all) of your paper from some source), you will fail the course, as outlined in the University of Arizona Code of Academic Integrity.

More information is available at the library, [http://www.library.arizona.edu/help/tutorials/plagiarism/index.html](http://www.library.arizona.edu/help/tutorials/plagiarism/index.html)

**From the Dean of Students:**

**Plagiarism**

Plagiarism takes place when one person uses someone else's ideas or exact words from a copyrighted source. Whenever something is fixed in some form (for example, a book, journal, electronic storage medium, or even a research paper written by a fellow student) the work is considered copyrighted. It can be unethical or even illegal to use copyrighted material as one’s own work. Students who use copyrighted material without proper citation can expect to receive a low or zero grade on an assignment. Students should consult their instructors on class policies regarding plagiarism. When most students think of plagiarism they think of using someone else's words or ideas without properly citing the source. Although this is one form of plagiarism, others exist. If a student uses someone else's words or ideas, but changes only a couple of words, this is also considered plagiarism.

**Examples of outright plagiarism:**
We'll use a sample paragraph from Phyllis Ball's A Photographic History of The University of Arizona 1885-1985 (1987, p. 2) for illustration purposes. Ball wrote the following about the "Historical Beginnings" of the University of Arizona:

“The bill that passed (the Arizona State Legislature) March 12, 1885, with its $25,000 appropriation, stipulated that 40 acres of land for a campus must be obtained in a year or the funds would lapse.”

If you were to reproduce this passage without placing the material in quotation marks and citing the source, you would be guilty of plagiarism. But, plagiarism also occurs if you simply change a couple of words and use the rest:

“The bill that passed (the Arizona State Legislature) March 12, 1885, with its $25,000 appropriation, stipulated that 40 acres of land for a campus must be secured in a year or the state appropriation would lapse.”

Notice that we have merely changed a couple of words (shown in italics). However, the basic structure, tone and organization of the original source remains the same.

**Tips for Avoiding Plagiarism and Lazy Writing**

The best way to avoid plagiarism is to correctly paraphrase and cite sources. This goes for lazy writing as well. Keep the following rules of thumb in mind when writing a paper:

1. Properly cite the source of words and ideas that are not your own.
2. Paraphrase information from another source, providing a proper citation.
3. Enclose directly quoted material in quotation marks or set longer passages off in a block paragraph style. Provide the proper citation, which includes the page number(s) where the material can be found in the original source.
4. Use quoted material sparingly, supporting ideas you have written in your own words.
5. Written assignments you turn in should be written in your own words. Never turn in a paper that consists of large amounts of material taken from other sources with little of your own writing. Even if you have made some minor, cosmetic changes to the original material and properly cited the original source, the bulk of the assignment should be the student’s writing.

**Previously Submitted Works**

Students are not allowed to write a paper for one class and turn the same paper in for another class during the same semester, or during ensuing semesters, even if the student makes modifications to the paper before submitting it on another occasion. Previously submitted papers are stored in a database. The UA compares all submitted papers to this database to assess originality.