**Semester Project Assignment**

I ask that, during the semester, students complete a final project consisting of the following:

(1) a paper written on a topic of the instructor's choosing;

(2) a recorded oral presentation, including slides made with PowerPoint software.

*The research question*

Students should start this project by formulating a research question that is to be based upon the broad topical area to be announced by your instructor. The research question should be relevant to the course and it should also fall within the given topic. It also should be reasonably specific and timely. That is, it should address a current question within astronomy.

*Library research*

We're fortunate to have librarians at Mountain View who are ready to assist you in finding resources (databases and articles, in this case) that will help you answer your research question and write your paper. Many resources are available on-line, or otherwise in electronic form, and you may also use any other resource such as books, journals, or astronomy magazines.

It is very important to get help from the librarians, because they are experts at determining the authenticity and reliability of the many articles that are available to you. They will help you select articles that report the results of actual scientific research.

When working on this project, please keep in mind that science relies upon evidence and logic. So, when you're looking for articles to use, as yourself: How did they conduct this research project? Can I be confident in their results? Does their interpretation of the evidence make sense to me?

On-line or print encyclopedias such as Wikipedia can help you quickly get some background information about your research question, and might even help you find useful articles. But the articles upon which you base your paper should be original reports of research, not encyclopedia articles such as Wikipedia. Even magazine articles are acceptable, as long as they say something about *how* the research was conducted – that way, you'll know where the data come from.

The MVC library web site can be a good place to start your research:

<http://www.mountainviewcollege.edu/library/Pages/default.aspx>

There will be two important links on the left of the page: "online databases" and "research tutorials."

To start your research right away: click on "online databases," then scroll down and select your broad research area (astronomy) in the box with the heading "What subject are you looking for?" then click on "Go." This will return a list of databases relevant to astronomy. Then you can select one or more databases and start searching for articles.

In most of these databases, you can click on a box that will limit your search to full-text articles, which means that you'll be able to go directly to an html or PDF document without having to do any further hunting for it. You may also be able to limit your search to academic journals, if you need to.

If you want to familiarize yourself first with some of the databases and other resources (before you start searching for articles), you can go to the main library web page, and click on "research tutorials," which will give you an introduction to doing research for writing assignments. You may want to use these tutorials especially if you have not done electronic library research before.

*The paper*

We ask that students write a paper of approximately three pages, double-spaced, based on a topic to be announced by the instructor. In your paper, please include references to at least three articles that report the results of research in astronomy. These articles should describe the methods used by researchers to obtain their data. Newspaper articles generally do not include enough information about the methods used by researchers.

Please cite the articles that you use within your paper, in order to support any statement that is not common knowledge. You may include quotations from the articles, as long as you place the quotations within quote marks, and you cite the source. Please, however, keep quotations short – the paper should be written mostly *in your own words*. Even when you use ideas or information from someone else (not just their exact words), please cite the source to give them proper credit for their work.

Using your own words is challenging – we know that! But you can make it easier by trying to think of your own original way to explain the subject to someone who is not familiar with astronomy, and who hasn't read the articles that you're using. How would you explain this clearly to a friend or family member? That's usually a good way to write a scientific paper.

Please use standard, formal English, complete sentences, and include several paragraphs of reasonable length. A paragraph is generally at least two sentences long, but not half of a page. Paragraphs that are of reasonable length, and logically structured, make it easier for the reader to understand you.

Please also remember that thought takes time. An "A" paper is a paper that reflects thought. So please give yourself plenty of time to work on this...the ideas and understanding will flow gradually, and you can't really rush that process.

*The Mountain View College Writing Center*

In addition to our library, we are also fortunate to have a writing center staffed with professionals whose job it is to help you improve as a writer. Information about their hours and services can be found at: <http://www.mountainviewcollege.edu/Academics/InstructionalSupport/Pages/Writinglab.aspx>

The writing center is open weekdays, evenings, and Saturdays. They're located in room W-114.

*The oral presentation*

The oral presentation will be a summary of your paper. Try to make your presentation interesting and thought-provoking, so that after seeing it, someone would want to read your paper to find out more about this subject.

Since this is an on-line class, we ask that you record your oral presentation on video, which you will then submit to eCampus. As part of your oral presentation, please use PowerPoint presentation software and make at least five slides of your own. You will use these slides as visual aids during your presentation. The slides will also be submitted to eCampus along with the video recording of your presentation.

Please remember that in any presentation, the oral element (that is, speaking) comes first. Imagine that you are giving your presentation to a real audience, and try to really communicate with that audience. I suggest that you give your presentation as though you were explaining your research topic to a small group of friends.

Please keep in mind as well that you will need time to make your slides, get your camera ready, outline and practice your presentation, and so on – and all of this is in addition to writing your paper. Therefore, I urge you to start early on your presentation.

*References*

We ask that you cite (reference) the three articles in the course of your paper – and you should mention at least two of them during your oral presentation as well. Please use them as a source of information and ideas, as a way to support the statements that you make in your paper.

You may use a number in parentheses, similar to an endnote, to cite an article in your paper; then, list the articles in that same order in the reference list at the end of your paper. For example, you might write this sentence:

"According to Spencer and Marshall (1), the core of Jupiter is under extremely high pressure."

Then, your reference list would begin with (imaginary example):

(1) Spencer, J. and Marshall, Q. 2011. Jupiter's amazing core. *Gas Giant Quarterly* (June 2011), pp. 90-110.

In this case, the authors of the article are Spencer and Marshall – just give their last names and first initials. List the year that the article was published, then the title of the article. Finally, give the name of the magazine or journal (in italics), and information about the volume (or month and year, as in this case) and page numbers. This is a relatively simple way to format your reference list.

*Formatting in general*

All of the necessary identifying information for your paper can go into the header of the document (in Word, double-click near the top of the page to type in the header), such as your name and the name of the class. The title of your paper should be at the top of the body of the document, not in the header. Your margins should be about 1 inch (about 2 cm) on all sides of the document, and your typeface should be about 12 point, in a font that is not hard to read.

Your name, the class, and the title must appear on the document. In addition, your last name must be part of the document's file name – for example, "Spears B Phys 1403 proj.docx." Please submit your paper and the oral presentation materials on eCampus in commonly-used file formats**.**

Good luck with your project!