Assignment: Complete a written report on a topic of your choice and deliver a brief oral presentation of what you have learned to the class.

Topic: The purpose of this assignment is to help us, as a class, fill in some of the gaps in coverage inherent to the broad approach we are taking to the history of human thought about the physical world. To this end, each of you will carry out an investigation into one of the following areas:

1. The astronomical achievements and beliefs about the physical universe of a non-Western culture. In this course we have taken a decidedly narrow approach to the development of human thought by selecting only those thinkers that have played major roles for our Western culture. I have been guided in this process by the overarching idea that by studying one heritage in some detail, we can achieve insight into how humans in general have changed in their approach to gauging physical reality through time: what questions they have asked, and what answers they have found to be satisfying. It is important to consider the inroads and approaches that other societies at different times and/or places were making. The topic for this project, then, will be to research a non-Western culture’s astronomical achievements and, if possible, to set these achievements in the context of their larger world-view. While the bulk of the report will likely be a description of their specific astronomical achievements, also consider such questions as:
   - What were their early conceptions of space and the physical world? Did they have a mythology about the stars?
   - Did they view the heavens as an integral part of their own lives? Were the heavens separate from things on the earth?
   - What types of answers did they find satisfactory to questions about changes in the physical world around them?
   - What drove them to discovery? Why were they led to care about such things?
   - How did their views change over time? What brought about these changes?
   - Did they maintain a complete separation from Western thought? Or, were their views shaped by the ideas we have discussed in class?
   - How large a role did religion play in their ideas?

   Now, many of these questions, especially for ancient societies, may not be directly answerable based on available data — just do the best that you can with them, feeling free even to speculate, based on what you have learned.

   To serve as a starting point for this investigation, I have placed the book: “Astronomy Across Cultures: The History of Non-Western Astronomy” on reserve at Millikan Library’s front desk. In it, you will find over 20 articles spanning a range of societies, from the “Birth and Development of Indian Astronomy” to “Useful and Conceptual Astronomy in Ancient Hawaii”. Note that the article, though, should not be your only source of material; your investigation is expected to go beyond the introduction so provided.

2. An investigation into the original writings of a major thinker of the Middle Ages. Have we given the so-called Middle Ages a short shrift in class? Do you want to learn more about what transpired during that long period from the mid fifth century to the mid fifteenth century? This is your chance. Choose an influential writer, read one or more of their major works, and provide an analysis/critique of what you have read. Your review should begin with an overview of the person’s life and legacy before focusing on those particular works that you have chosen to investigate in more detail. Some obvious personalities to study include, but are not limited to, Martianus Capella, St. Augustine, St. Thomas Aquinas, Boëthius of Dacia, and Nicole Oresme. The original writings are largely available from within the Caltech library system.
3. A self-designed investigation of your own choice. Have a great idea for a topic that you would like to pursue that is not included in the above suggestions? Run it past me; if I agree that it is worthy, then this can be your project topic. The purpose of this assignment is to find something that is broadly related to the course and, most importantly, that interests you.

Format: There are two complementary assignments for this project:

1. A written paper of 5 – 10 typed pages in length (more is fine), due Thursday, May 5 (worth 15% of your course grade). This paper will be evaluated on the following criteria (roughly in descending order of importance):

   - How well written it is.
   - How completely you address the topics that you set out to discuss.
   - How coherent the paper is: that is, does it flow nicely through time with logical connections? Or, does it jump abruptly from one major idea to the next?
   - What additional insight you bring to the study: either from your own background, or from the ideas we’ve discussed in the course.
   - The creativity of your approach (this can only help your grade!).

2. A brief (10 minutes total, 7 minutes talk, 3 minutes questions) oral presentation delivered to the class Tuesday, May 3 (worth 5% of your course grade). Your presentation will be evaluated on the following criteria (roughly in descending order of importance):

   - How organized it is.
   - How well you communicate the major ideas.
   - How well paced the talk is, and how well it fits within the seven minute limit.
   - How well you respond to questions asked by the class.

Giving a seven-minute presentation is not easy! Most likely, your topic is quite involved, and whittling it down to its essential points will be a challenge. Here is a little strategy: First, really think about the main things that you have learned while researching your topic, and see if you can write them out in “bullet” fashion; probably no more than three or four salient points can be effectively communicated to the class during your limited presentation time. Armed with this information, then, begin to construct your presentation. In general, there are 3 parts to a successful short talk:

(a) Introduction ≈ 2 minutes. Although not nearly as detailed as that given in your written project, start out by giving an introduction that is sufficient to place the main findings of your project in their proper context. If you choose to show overheads (either Powerpoint or transparencies), it is good practice to put the talk title and your name(s) on the first slide (or transparency).

(b) Main Findings ≈ 4 minutes. In this section, present the main things that you learned from your investigation. It is best to show explanatory pictures or figures rather than lots of words on the slides (overheads): you explain verbally what is presented visually by the figures. Few things alienate an audience more quickly than crowded viewgraphs with lots of writing in a short talk.

(c) Conclusions ≈ 1 minute. Briefly recap the main highlights of your project. If you are showing overheads, write out in very short sentences your main findings, and then leave this slide (transparency) up during the question period so that the main points you wanted to get across will further “sink in” with the audience.

If you choose to show overheads or slides during your presentations, a key thing to remember is to not show too many. It is generally thought that about 1 overhead every 2 minutes is a good rate to use during a talk, so you should probably shoot for no more than 4 overheads or slides.
If you want to show overheads, you may use either overhead transparencies, or Powerpoint. If you wish to use overheads, just ask me for some blanks. If using Powerpoint, please (a) email me your “.ppt” file by 5 PM on Monday, May 2, so that I can be certain it will display properly in class the next day.

A final, very important point is to remember that you only have 7 minutes for the presentation! This means that you must make each word count. **Rehearse your presentation several times out loud,** until you have effectively memorized it and gotten its length down to seven minutes (it’s OK to bring a piece of paper up with you, but directly reading off of it should be avoided). In a seven minute presentation, you can not “wing it” nearly as easily as you can in a longer talk, since you must say things as concisely as possible in order to get through all of the information that you want to present.

**Important Dates to Remember:**

1. **9 PM Friday, April 15:** Email me your requested topic by this time, the earlier the better, since only one student may research a given topic. I will email you back with confirmation.

2. **5 PM Monday, May 2:** If giving a Powerpoint presentation, please email me your “.ppt” file by 5 PM the day before the talks are given. By the way, your presentation will be shown using a Mac OS X (version 10.3.8) running Powerpoint Mac 2004; Powerpoint produced by other (e.g., Windows, Staroffice) systems should be compatible – if there are any problems, I will email you back on Monday so that we can try to fix them.

3. **Tuesday, May 3:** Oral presentations given during our regular class time. Note that there will be no weekly writing assignment due on this day.

4. **Thursday, May 5:** Written report to be turned in at the start of our regular Thursday night class.