

## Math 4513 homework

Homework Assignment #7 (start soon) Besides the exposition on methods of proof, there will be two more major assignments for the course. For now, the assignment is to begin thinking about them and doing some preliminary investigation.

The first will be a seminar presentation of some historical topic— some kind of development, breakthrough, or other significant event in the mathematical world. The two weeks after spring break will be the target dates for these. Think in terms of a 15 to 20-minute blackboard seminar (we are not well set up for higher-tech visual aids, although if you really want to use some we can look into the possibility). You can use internet materials for sources, but should also look in the three journals of the Mathematical Association of America. These are the *College Mathematics Journal*, *Mathematics Magazine*, and the *American Mathematical Monthly*. All three are in Bizzell, and also accessible online through the OU library system as follows:

1. Log on to the OU Library at <http://libraries.ou.edu/>
2. Under Resources by Subject, follow the link Mathematics.
3. Under Databases, follow the link JSTOR.
4. Under Browse By Discipline, follow the link Mathematics. It leads to a page with links to the archives of these three journals and a number of research journals.

Try to avoid cliché topics like Greek mathematics, the death of Evariste Galois, and so on. More modern developments with more mathematical content will be of greater interest for most of us. In a week or two I will ask you to email or personally meet with me to propose your topic for approval.

The second major assignment will be to give a seminar presentation during the final month of the semester, in which you present the material in a written document to be turned in one week before the last day of classes. Most likely it should be based on an article that you select from the *College Mathematics Journal*, *Mathematics Magazine*, or the *American Mathematical Monthly*. I will consider proposals for alternatives if you wish to make one.

The first stage will be to find two or three mathematical articles (very likely from the MAA journals) that you present to me during an individual meeting some time during the two weeks before spring break. I will select one of them to be your basic topic, or else ask you to find some different ones. Again, I will consider alternative ideas, but at least two articles should be proposed along with them.

Based on the article and any additional sources that you use, you will make a 20 to 25-minute seminar presentation. The written document will be an exposition of the material that you have learned from the article and related sources. Your written exposition does not need to be and probably should not be long, perhaps 4 to 10 pages is a reasonable length. Of course it should be well-written, concise, interesting, and informative.

Seek a topic that is interesting to you and that you believe will also be interesting to the other seminar participants, especially something novel or out of the ordinary. Definitely avoid super-cliché topics like the Fibonacci sequence, the Euler characteristic, and so on. You are encouraged to use more sophisticated topics from pure or applied mathematics, as long as they are in your mathematical comfort zone.