RESEARCH PROJECT

WESLEY CALVERT

1. What is to be done

You will choose some recent (since 2006) paper published in the *American Mathematical Monthly*, the *Mathematical Intelligencer*, or some other journal that both you and I find agreeable. The article, too, must be agreeable both to you and to me. You will read the paper (where "read" is taken in the mathematical sense, more about understanding than about linear progress through a document), perhaps (at your discretion) think about it a little beyond what you've read, and organize what you've learned in such a form as to present it to the rest of the class.

You will write a paper and give a fifteen minute oral presentation to the class during the period from April 27 to May 4.

2. Project Topics

You have broad latitude in selecting your topic. Your paper and presentation need not be bound exactly to a presentation of the results of the paper, but should be heavily influenced by them. Think big. Recall that the ambitious nature of the project is part of the grading rubric.

You should meet with me to obtain my approval on your project topic. Nearly any reasonable idea will be approved. I can help you locate resources that may be helpful to you. Talking with me about your project, how it's going, and what you wish you could find for it is a good idea.

Be adventuresome, where possible, in your choice of topics and opinions. I'd dearly love to learn something I don't already know. Some papers will be more demanding than others, but the grade has some built-in factors to reward those who take risks by stretching their abilities.

3. Hints on the Presentation

YOU MUST PRACTICE YOUR PRESENTATION!!! You must practice, and you should practice many times. You should practice with a stopwatch and in a classroom. You should, if possible, practice with an audience (I know one successful mathematician who used her cat as a practice audience, but she knew she needed something). Not long ago I evaluated a speaker (outside the university, by the way) who received failing marks, primarily because he had never practiced his presentation.

4. Timeline

March 11: You must have met with me and had a topic approved
April 22: I must receive your written report
April 27–May 4: In-class presentations

Of course, these are only the times at which *I* need to see things. If you go out on March 10 to pick a topic, you won't find one in time, and if you start your reading on April 20, you won't understand enough in time to write your paper. The level of reading I'm asking you to do will take *enormous* amounts of time. You must behave as if you were driving in snowy weather: *Start early, and expect delays.*

5. Grading

In addition to the usual grading questions, I will assess the following:

(1) Content Questions
   (a) Is the topic approved? Is the topic closely connected to some paper since 2006 in one of the indicated journals?
(2) Form Questions
   (a) Is appropriate use made of time in the presentation (there is enough to be worth fifteen minutes of people's time, without overloading the presentation or going over the time limit)?
   (b) Is the presentation well-delivered and professional? Are the tone and language appropriate to the audience and occasion?

6. Special Option

If you give a presentation on your work at the Illinois Section MAA Meeting on April 8–9 in Jacksonville, it may, at your option, be assessed as your oral presentation for this project. In almost all cases, a project suitable for presentation at that meeting would also be suitable for the present assignment, whether or not you can find a particular article on it. Other conferences may also be acceptable; check with me for details.

In other words, if you're doing research or want to be doing research in mathematics, feel free to double-dip for this assignment.