

Math 480: Instructions for final project.

- As mentioned at the beginning of the semester, students are required to do a final project. This will consist of a 10-15 minute talk in class and a 3-5 page written paper. The topic can be an interesting topic or technique from one of your other 400-level math classes, something you find in a nontechnical math or science magazine or website, something on math history, math art, etc. Some places to look for inspiration include the mathematics periodicals listed below, old *Scientific American* columns by Martin Gardner (these have been collected in several books), books on "recreational math", or anything else you can think of. If you are working on a project for another class, it is OK to use a version in this one but you need to adapt it to this one and clear it with both me and the other professor.
- I am more interested in the nature of the presentation - how well you package and present your content - than in the intrinsic interest of the content itself, though it *should* be something useful, fun, and/or otherwise interesting so that we all learn something from it.
- The number of pages for the written part will depend on how many figures (pictures or diagrams) you include in the paper, what font you use, and so on.
- You may coordinate with one or more other students, though I then expect the work to be beefier. For example, I could imagine Student A proving the von Neumann theorem that in finite 2-player games one player always has a winning strategy, then Student B giving a strategy for an interesting game. (c.f. Conway's *On Numbers and Games*)
- The oral presentations will be held in class on May 2, 5, and 7.
- Please write a brief proposal for your topic and get my approval for it by April 9 at the very latest (I will start looking at proposals as soon as you start getting them to me!)
- The written part of the project is due May 12.

- The project should include at least 2 references from mathematics periodicals (not Wikipedia or similar websites), with some content in the paper or the talk taken from that source¹. This need not be a heavy-duty technical math research journal, for example the *Mathematical Intelligencer*, the *American Math. Monthly*, the *College Math. Journal*, *Mathematics Magazine*, and the *Notices of the American Math. Society* are all fine sources.
- Some of the comments in the “Instructions for report on external talk on P=NP” might be useful in deciding what to include in your presentation or paper.

¹It need only be a brief mention, and can just be a footnote