PROJECT GUIDELINES

MATH 447, FALL 2012

1. Overview and deadlines

As described in the course syllabus, and agreed on the first day of class, you have a choice between a final exam and a final project. The exam will be 3 hours in the assigned exam slot; it will be similar in structure and difficulty to the midterm, but scaled up for the longer time. The project will be a written project around 6-10 pages in length; there is no strict maximum or minimum.

You must choose whether to take the exam or do the project by **Friday, Nov 2**. If you opt for the project you must choose your topic by **Friday, Nov 16**. The project is due **Monday, Dec 3**.

2. Content and topic ideas

Here are a few ideas to get everyone started thinking about project topics.
- Find an application of coding theory and discuss it: which codes are used and why?
- Expand on a concept mentioned briefly in the text or in class, eg higher order Reed-Muller codes, further bounds for codes, topics from sections we didn't cover such as weight enumerators. Be sure to go beyond the textbook.
- Find an open problem in coding theory and discuss the background and motivating examples. Some sources of open problems: `http://www.math.kth.se/~olohed/Openproblemsalll.pdf`, `http://garden.irmacs.sfu.ca/?q=category/perfect_code`.
- Investigate the history of a coding theory concept or person. Be sure to also include some mathematics in its historical context.
- Read a relevant research paper, explain the core idea and work out a detailed, insightful example.
- Present interesting examples related to coding theory from your area of research.

3. Evaluation

The project should be written at a level that your fellow classmates could understand and appreciate it. No handwritten projects please.

The project will be graded on
- clarity, presentation, and language: Is the project clearly written and understandable? Does it tell a story in a compelling way?
- mathematical content and correctness: Is the mathematics in the project correct? Is it relevant to class and to the project topic? Is the mathematics insightful and substantial?

There are many ways to write a good project, so there can be no rigid grading scheme.

Cite your sources and **don't copy**. You can get a 0 or worse for academic dishonesty.