

# MATH 499S WINTER 2010

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## COURSE REQUIREMENTS

### **Proof Portfolio**

20%

This portfolio is a sampling of proofs *you* have done in your previous mathematics courses. You will need to have one example from each of the following proof techniques: direct proof, contrapositive proof, contradiction proof, proof by cases and a mathematical induction proof.

Procedure: Choose a proof that represents a particular proof technique. Rewrite this proof, correcting, of course, any mathematical errors and clean up any faults in diction and clarity. If you have access to an equation editor, type it. Put your name in the upper right hand corner and two spaces below, put the proof technique (in bold) that you are illustrating. You will submit to me one such proof each week beginning Thursday, January 14. It is possible that I may ask you to rewrite your proof.

### **Mathematical Applications Paper**

30%

Your paper should present either a **single** application of mathematics at or above the calculus level. You can choose an application that you learned in one of your courses, as part of an REU, as part of an independent study, or something you picked up anywhere else. You should include background information about the application so that a mathematical reader can follow the paper. You should also provide some mathematical content. You should check whether your topic is appropriate with the instructor prior to writing the paper. You should also consult with the instructor to insure that you include enough mathematical material.

Mechanics: You should try to answer the question in four pages (certainly no shorter than 3, nor longer than 5). It should be typed, double-spaced, in a reasonable sized font. You will be graded down for incorrect word usage, incorrect spelling, and poor grammar (as well as incorrect mathematics).

Program Assessment: For the purposes of program assessment, we will remove your name from the paper and keep a copy on file in the department so that we can compare responses across multiple years.

Due: February 25.

Also included in this assignment is a 10 to 15 minute in-class presentation of your paper.

### **“What is Mathematics” Paper**

30%

Details to follow.

### **Classroom Participation**

20%