

## M435 Projects in Applied Mathematics

### Topics

This course provides students with an opportunity to explore a range of applications of mathematics via in-depth projects. In spring 2011 four projects will be selected from the following topics:

- Simulation Modeling
- Nonlinear Data Fitting
- The Transportation Problem
- Processing Large Data Sets
- Game Theory
- Dynamical Systems Modeling

### Prerequisites

Students should have M229 and ability to program in Matlab. Generally it is recommended that you take this course in your final year of study.

### Instructor

Professor Michael Kirby, kirby at math dot colostate dot edu. Weber 211.

### RAMCT

The class will have a RAMCT site. Please use this to email me to ensure a quick reply. All reports will be uploaded to RAMCT in pdf format.

### Grading

The final grade will be determined the evaluation of

- $N \geq 4$  reports (submission in LaTeX required) 80% (80/N% each)
- class participation 5% (zero credit if more than one unexcused absence)
- final report presentation 15%

### Groups

All work will be done in groups. The groups will generally be different for each project. Each group will receive a single grade for each project. The recommended group size is three students.

## Project Reports

Each project will be presented in report form using the mathematical text processing language *latex*. The components of a report include (with grading rubric)

- Introduction to the problem (10 points)
- Mathematical formulation of the problem (20 points)
- Results (15 points)
- Analysis (30 points)
- Future Work and Conclusions (10 points)
- Bibliography (5 points)
- Labeled figures with captions referred to in the text (10 points)