

# Math 484: Mathematical & Computational Modeling

Course Information and Syllabus – Spring 2012

## Instructor:

Prof. Jon M. Collis  
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## Office hours:

Tuesday: 02:00pm – 03:00pm  
Wednesday: 01:00pm – 02:00pm  
Thursday: 02:00pm – 03:00pm

*Also by appointment! – contacting me via email is the best way to contact me.*

## Course Objectives and Goals

Teach students how to build and analyze mathematical models. Most concepts presented in the context of physical problems that arise in industry, government, science and engineering.

1. Main objective is to teach math students how to build mathematical models to physical problems.
2. Be able to solve modeling problems through the effective use of a computer as a tool.
3. Analyze models for accuracy and error.

## Suggested Prerequisites

Math 407 or equivalent first course in scientific computing.

Math 455 or equivalent first course in partial differential equations.

## Textbooks

A. Friedman and W. Littman, *Industrial Mathematics: A Course in Solving Real-World Problems*, SIAM, 1994 – required.

## Student Evaluation

Homeworks (probably 6 projects, 1 or 2 review homeworks)	(70%)
Final Project	(30%)

## Grading

Student homework problems will be graded on a three point scale:

- 3 = Problem is 100% correct.
- 2 = A serious attempt was made at a solution, but it is off by a sign or other minor error.
- 1 = An attempt was made at the problem, but not very serious.
- 0 = Problem was not attempted.

## Late Work

The general policy for this course is that late work is NOT acceptable. In reality, there will be a few rare situations when I will accept late work. The procedure for late work is as follows: a) you must receive permission (either via email or in person) PRIOR TO submitting late work, b) when the work is complete, you should submit it to me and indicate that it is late on the assignment, c) your work will be graded and late points may be assessed, generally at the rate of one point per day late.

## How to Do Well in this Course

- Get off to a good start *this week*. Attend every class.
- Keep a notebook of all lecture notes as well as all your graded homeworks. This makes studying easier and more efficient and will result in a higher grade. If something is written on the board, it is there for a reason and will probably come up again.