# Math 4583, Introduction to Modeling

Course Information Fall 2015

**Professor:** Dr. Lisa Mantini, 410 Math Sciences
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- ▷ Course Times: MWF 2:30–3:20 PM in 514 MSCS.
- ▷ Instructor's office hours: TR 2:30–3:30 PM and by appointment.

**Prerequisites:** Calculus I and II (Math 2144 and 2153) and Linear Algebra (Math 3013) are the prerequisites listed in the catalog. The course this fall will also require students to use techniques from Differential Equations (Math 2233) in the last third of the course. Students who are concurrently enrolled in Math 2233 should be fine. Students may be asked to use techniques from statistics, to use an Excel spreadsheet, or to do other computer programming at times.

**Course Objectives:** The aim of this course is for students to experience the various aspects of modeling real-world phenomena with mathematical methods, such as

- constructing a mathematical model from real-world data, using simplifying assumptions as needed;
- analyzing mathematical models to derive conclusions about the resulting mathematical behavior;
- comparing the mathematical conclusions drawn to the behavior of the real-world phenomena to predict behavior and refine the model.

**Text:** *A First Course in Mathematical Modeling*, fifth edition, by Giordano, Fox, and Horton.

**Course Requirements:** Students enrolled in this course will complete the following:

| ITEM | DATE | POINTS | WEIGHT |
|---|---|---|---|
| Homework | various | 150 pts | 20% |
| Class work, quizzes | various | 75 pts | 10% |
| Projects | various | 225 pts | 30% |
| Exam 1 | Wednesday 23 September | 90 pts | 12% |
| Exam 2 | Monday 2 November | 90 pts | 12% |
| Final Exam | Monday 7 December | 120 pts | 16% |
| TOTAL | | 750 pts | 100% |

**Grading:** Preliminary grade cutoffs, which may be curved very slightly if circumstances warrant, are:

- 672 points (89.6%) guarantees an A in the course;
- 597 points (79.6%) guarantees a B;
- 522 points (69.6%) guarantees a C;

- 447 points (59.6%) guarantees a D.

**Course Policies:** The following policies will be followed in this course.

HOMEWORK In this course you will complete approximately ten homework assignments that cover computational and theoretical aspects of mathematical modeling. Please prepare all written work neatly on 8.5 by 11 inch sheets which are stapled and have no ragged edges. I am not obligated to grade work which is sloppy, illegible, or does not conform to these guidelines.

PROJECTS There will be three projects in this course, worth 50, 75, and 100 points. These will be typed up neatly using a mathematical typesetting system such as the equation editor in MS Word or using LaTeX.

GROUP WORK Some of the assignments and projects will be group projects which may require meeting times outside of class. Group members will also evaluate each other's contribution to the project. Group members are not guaranteed to each earn the same grade on the project. Students will fill out an information sheet indicating their group member preferences on the first class day, to facilitate assignment of groups.

SEATING CHART To facilitate having groups work with each other on in-class activities, we will have a seating chart which will keep group members sitting at the same table. This chart will be available during the first week of class.

D2L I will post course information, assignments, exam review problems, and homework solutions on our D2L page.

EMAIL COMMUNICATION I will use the Class List in D2L to email students with news about the course, schedule changes, or other items. Group members may also contact each other using the link on the Class list in D2L. Please set your email address in D2L to one you check *daily*.

ATTENDANCE POLICY Attendance is required. Three absences are allowed without penalty. Absences beyond three will each cause a deduction of **5% from your final grade average**.

MAKEUP EXAMS Makeup exams will be given only for serious and unavoidable conflicts. You must notify me before or as soon as possible after a missed exam. Makeup quizzes are not guaranteed without a penalty.

WITHDRAWAL The last day to drop the course with no fees encumbered and no grade is Monday, August 24. The last day to drop with a partial refund is Friday, August 28. The last day to drop with an automatic grade of W is Friday, November 6. The last day to withdraw from all classes with a grade of W or F is Friday, November 20.

**Special Accommodations:** If you have a qualified disability and need special accommodations, you should notify me as soon as possible and request verification of eligibility for accommodations from the Office of Student Disability Services.