

# Math 325 Modeling Syllabus

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Fall 2012

**Instructor:** Jim Wiseman

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**Office hours:** Mon 3:00-4:00 in Buttrick 331, Tues 2-3:30 in Buttrick 331, MWF 12:40-12:55 in BSC 304E, and by appointment.

**Course information:** Available on [Moodle](#) and the course website, <http://ecademy.agnesscott.edu/~jwiseman/mat325>.

**Required material:** The textbook is Mooney and Swift, *A Course in Mathematical Modeling*, available at the bookstore.

**Plan:** We'll cover most of chapters 1-3, 5, and 6, and finish up with some applications of modeling to climate change and epidemics. There's a more detailed schedule at <http://ecademy.agnesscott.edu/~jwiseman/mat325/schedule.html>, but it's subject to change.

**Homework:** There will be homework assigned throughout the semester. I strongly encourage you to work in groups, but you must write up the results yourself. Assignments will be posted at <http://ecademy.agnesscott.edu/~jwiseman/mat325/assignments.html> – you are responsible for checking the assignments, as I won't give them in class.

**Chapter projects:** During the first half of the semester, you will be assigned group projects from the end of each chapter. We will generally begin these in class, and you will present them in a later class.

**Final projects:** The [final project](#) consists of an 8-10 page paper and a 15 minute in-class presentation on a modeling topic of your choice. During the second half of the semester the class will be more lecture and less group work, to give you time to work on your project. Here is a list of some possible topics (I encourage you to think of your own): cellular automata, traffic flow, voting theory, drug dosages, arms control, bioinformatics, diffusion models, game theory, learning, influence and social power....

**Honor code and group work:** All students are expected to follow the honor code throughout the semester; all exams and assignments should be pledged.

I strongly encourage you to work on the homework in groups. I suggest that you work on the problems by yourself first, making a note of anything giving you trouble; then meet with your group and work through the remaining problems together; and finally write up the solutions by yourself. Every group member must write up her own solutions independently; just copying the group's answers is plagiarism and is unacceptable.

**Getting help:** As Talking Barbie says, "Math class is tough." (Unless she's the hacked version - then she says, "Eat lead, Cobra.") Chances are that sooner or later you'll get stuck on something, so don't get frustrated. Think hard, and if you're still stuck, do something else for a while. (It's amazing how often that works.)

My office hours are above - these are times when I'm guaranteed to be in my office and willing to talk. If you want to see me at other times, the best thing to do is to set up an appointment with me by email or after class. Of course, you're welcome to just drop by my office, as long as you don't mind if I'm not there or don't have time to talk.

Finally, I can't emphasize enough that your classmates are your best source of help.

**Course goals:** Learn to

- Understand and evaluate the use of mathematics in modeling the real world
- Create and use our own mathematical models
- Communicate mathematics effectively, both orally and in writing

**Exams:** We will have one midterm exam (take-home) and no final.

**Dates and deadlines:**

- Midterm exam: Fri 10/19, take-home.
- Proposal for final project due: Fri 10/26, 3:30 pm.
- Final project outline and bibliography due: Wed 11/28, in class.
- Final presentations begin: Mon 12/3
- Final paper due: Mon 12/10, in class.
- No final exam.

**Assessment:** Homework, chapter projects, class participation 50%; midterm 25%; final project 25%.

**Late work:** Late work won't be accepted, and you won't be allowed to make up missed exams, except under very exceptional circumstances (e.g., the sasquatch attacks - and even then you should get a note from the sasquatch). In the case of a conflict that you absolutely can't resolve (for example, a religious holiday), you may arrange to take a midterm exam early.

**Attendance:** I expect you to be at every class, on time.

**Attendance is mandatory on presentation days.** Tardiness or absence on other days will have no (direct) effect on your grade.

**Cell phones:** Cell phone use (including texting) is of course not permitted in class. Turn off cell phones, smart phones, etc., before class.

**Course evaluation:** Your feedback on the course is extremely valuable to me, the math department, and the administration. In particular, I take your comments very seriously and use them to improve the course the next time I teach it. You are responsible for completing an evaluation of the course at the end of the semester. I will provide more details later.

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