

MATH 0290 *Differential Equations* - Winter/Spring Semester 2009 (2094)

CLASS MEETINGS: MWF, 11:00-11:50 AM, Public Health Bldg. Room A115 (Crabtree Lecture Hall)

INSTRUCTOR: Dr. Jonathan Rubin

office: Thackeray Hall # 501

phone: 412-624-6157

e-mail: rubin@math.pitt.edu

office hours (tentative): Wed. 12:00 - 1:00 PM, Fri. 10:00 - 11:00 AM, and TBA

web: <http://www.math.pitt.edu/~rubin/> will contain assignments, handouts, exam dates and related announcements, and this syllabus

ADDITIONAL RESOURCES: Mathematics Assistance Center (MAC), 3rd floor of Thackeray Hall

COURSE OBJECTIVES: Differential equations form the mathematical language with which most physical systems are described. A fundamental knowledge of how to handle differential equations - in terms of how to think qualitatively about the behavior of solutions, how to actually solve a few basic classes of differential equations, and how to use differential equations as modeling tools - is essential for anyone working in a quantitative field. Students who complete Math 1270 are expected to:

- understand how to interpret differential equations mathematically.
- learn how to solve certain basic classes of differential equations likely to arise in physical applications, and to check that solutions are valid.
- appreciate some examples of how differential equations can be used in modeling physical situations, and gain the skills to write down basic differential equations models in novel contexts.

LOGISTICS AND ASSESSMENT: Your grade in my section of Math 0290 will be computed using a different formula than that indicated on the general syllabus and will be based on several components. Unless otherwise announced, a handout will be given each Monday, listing important topics from each section to be covered and relevant homework problems (usually agreeing with the general syllabus). The homework from one handout will be due the following Monday. We will also have a quiz at the start of class each Monday. The quiz will be based on the material from the homework assignment that is due. In some cases, you will be allowed to look at your homework papers while taking the quiz; this will be announced in class. We will have two typical Midterm Exams and a Final Exam (common across all sections of Math 0290). We will also have a Proficiency Exam. You will have several chances to take the Proficiency Exam during the semester. If you get a question right on the Proficiency Exam, then you will not need to answer that question on future iterations; however, there will be NO PARTIAL CREDIT on each question each time you take it. Your final Proficiency Exam grade will be 10, if you have completed all problems correctly over the course of the semester, or 0, if you have not. In other words, the Proficiency Exam is worth one letter grade.

<u>Grading Scheme:</u> homework	⇒ 10 pts.
quizzes	⇒ 20 pts.
2 midterm exams	⇒ 2 @ 15 pts. each
1 final exam	⇒ 30 pts.
1 proficiency exam	⇒ <u>10 pts. (0 or 10)</u>
	100 pts.

A/A⁻: 90-100, B/B[±]: 80-89, C/C[±]: 70-79, D/D⁺: 60-69, E: < 60

Math Career Info:

- 101 Careers in Mathematics by Andrew Sterrett, QA 10.5.A15, 1996
- She Does Math! by Marla Parket, QA 27.5.S53, 1995
- Careers for Number Crunchers and Other Quantitative Types by Rebecca Burnett
- Society for Industrial and Applied Mathematics:

<http://www.siam.org/careers>

- Math Sciences Career Info Web Site: <http://www.ams.org/careers/>
- Marywood University's Job Opportunities in Mathematics:
- Job Listings: <http://www.math-jobs.com/>
- Mathematical Association of America - Career Profiles (mostly from the late 1990's):

<http://www.maa.org/careers/index.html>

"The science of numbers isn't romantic...but without mathematics, man would still be an earthbound animal, running naked throughout the primeval forest." —*Mary Worth*