

## **MAT 414 — Introduction to Ordinary differential equations Spring 2014**

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Lecture: MW 12:45–2:05, Carnegie 122.  
Office hours: MW 10:00–11:30.  
Also by appointment, and any time my door is open.

**Course Description:** We will study differential equations of first and second order and also systems of first-order equations. A number of methods, including the Laplace transform, will be used to solve such equations and to understand the behavior of solutions. More specifically, we will cover parts of Chapters 1-3, 6 and 7, including: the analytic and qualitative aspects of first-order differential equations (linear and nonlinear), second-order linear equations and Laplace transforms.

**Prerequisites:** Calculus through MAT 397. Mastery of differential and integral calculus (295 and 296) is essential for working with differential equations.

**Textbook:** *Elementary Differential Equations, 10th ed.*, by William E. Boyce and Richard C. DiPrima.

**Class Attendance and Participation:** You are expected to attend and participate in class. Missing class is the most common reason for poor performance in the course. If you miss a class, you are responsible for obtaining notes for that class from a student who attended. It is also your responsibility to find out about any announcements made in class.

**Expected Work and Grading:** The required work for this course includes regular homework assignments, two midterm exams, and a final exam. Your grade will be based on your scores on two midterm tests, a final exam and quizzes. The quizzes will be given on a weekly basis, except in the weeks you have an exam, and they will have 1 or 2 or problems similar to the homework problems. **No makeup quizzes will be given.**

These pieces will be weighted as follows in determining your final grade. Completing all the homework problems is essential to be prepared for quizzes and exams.

Homework and Quizzes	20%
Midterm Exams	2 @ 25% each
Final Exam	30%

Your course grade will be computed as follows.

93-100	A	77-79	C+
90-92	A-	73-76	C
87-89	B+	70-72	C-
83-86	B	65-69	D
80-82	B-	0-64	F

**Midterm Exams:** Two midterm exams will be given during the semester. They will be given on Wednesday, February 26, and on Wednesday, April 23.

There will be **no makeup exams**. A missed midterm exam counts as a zero unless you present a valid excuse from a physician or the Dean's office. With the written excuse, you may use your score from the relevant portion of the final exam to replace the missing midterm exam score.

**Final Examination:** The final examination covers the entire course. It will be given on Tuesday, May 6, 2014 between 3:00 and 5:00 PM.

The exact location will be announced later in the semester. **Do not make arrangements to leave campus before 5:00 PM on Tuesday, May 6.** The final will not be given at any other time.

**Academic Integrity:** The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>.

**Religious Observances Policy:** Syracuse University's religious observances policy, found at [http://supolicies.syr.edu/emp\\_ben/religious\\_observance.htm](http://supolicies.syr.edu/emp_ben/religious_observance.htm), recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class.

**Students with Disabilities:** If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact

ODS as soon as possible. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations. Making arrangements with ODS takes time. Do not wait until just before the first test.

**Tips for success:** Here are a few suggestions for how to succeed in this course.

(1) It is absolutely essential that you understand how to solve the assigned homework problems and, more importantly, how and why the skills and techniques presented in the course are used in solving the assign problems. Quiz and exam questions will be similar to these problems.

(2) Ask questions about anything that is not completely clear. Don't hesitate to bring questions to me during office hours.

(3) Every day, read and study the sections in the textbook covered in the lecture. Learning mathematics takes time! Read carefully and work through all the examples in complete detail. It can be helpful to try to work through an example on your own before reading the solution.

(4) Stay caught up. Mathematical concepts build on each other cumulatively and you need to stay on top of the material at every stage. If you are having difficulty, don't expect that the problem will take care of itself and disappear later. Contact me immediately to discuss the problem!

(5) Form a study group. Many students benefit from a study group to work through challenging problems and to review for exams. You should attempt the problems ahead of time by yourself and then work through any difficulties with your study partners. Explaining your reasoning to another student usually helps to clarify your own understanding.

(6) You should expect to work hard. Don't get discouraged if you find some of the material very difficult. Be persistent and patient! If you follow the above suggestions, your experience in this course can be a rewarding one.