Math 285 C1: Introduction to Differential Equations, Online version

Prerequisite: Math 241.

Credit: 3 undergraduate hours (Credit not given for both Math 285 and any of Math 284, Math 286, or Math 441)

Instructor:

Dr. Aldo J. Manfroi
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Phone: 333-0217 (**not** recommended)

Office hours: Online on Zoom, TBA
or set an appointment by e-mail.

Tutoring: Online on Zoom, TBA

Main web page: Learn@Illinois: http://learn.illinois.edu
We will also use Campuswire for questions and discussions, WebAssign for the online textbook and some homework, and PrairieLearn for some ohter online homework and for the exams. Links are on the main web page.

Text: Boyce and DiPrima, *Elementary Differential Equations and Boundary Value Problems*, 10th Ed., 2012, Wiley. Online on WebAssign.

Course description and goals

This course is an introduction to differential equations. It is intended for engineering students and others who require a working knowledge of differential equations. Topics to be covered include techniques for solving and applications of ordinary differential equations, an introduction to partial differential equations, separation of variables, and Fourier series. The focus will be on understanding the physical meaning of the equations and their solutions, and not on rigorous proofs. We will make use of software and website to help in our understanding of these concepts, like WolframAlpha, Desmos, etc.

Attendance and class preparation

This semester the class is entirely online. Lessons with videos will be posted on Moodle (Learn@Illinois). Lessons are comprised of videos and short quizzes. You can assume that anything that is covered in the videos may be tested in the exams (unless we say otherwise). It is recommended you watch each video and then attempt the quizzes. If you have questions you can post on Campuswire, where either other students or the professor will answer your questions. Participation by other students on Campuswire is strongly encouraged. You may also come to the office hours on Zoom, or you can go to the tutoring hours on Zoom. Of course you can also email the professor.

Quizzes, homework, tests, final exam, and grading

You will receive a numerical score rather than a letter grade on assignments and tests, and your final score will then be converted to a letter grade. But after each test we will indicate approximate grade ranges, so that you have some idea of how you are doing. Also, 5% of your grade will depend on the lesson quizzes, 15% on your homework on WebAssign, 15% on your homework on PrairieLearn, 5% on your lowest graded test, and 20% on each of the remaining tests (Tests include midterms and final).

Homework

Assignments will be posted on WebAssign and on PrairieLearn. Use these to develop your computational skills and understanding of the lessons. All the homework assigned before a midterm will be due two days before a midterm. You are free to discuss the homework with your classmates, but we strongly encourage you to understand the solution yourself. Do not assume you understand something just because someone told you how to do it. Remember that no collaboration will be allowed during tests and exams. Your homework assignment with the lowest score will be dropped for each platform (WebAssign and PrairieLearn)

Midterms and final exam

There will be three online midterm tests and a comprehensive final exam, all on PrairieLearn. You **may** use notes, books, calculators or computers

during any of the tests. You may **not** collaborate with other students (or any individual) during the exams. The test with your lowest score will count for 5% of your grade. If you miss a test, that will count as your lowest graded test. (Note that University policy requires that you take a final exam.) Each of the remaining tests will be worth 20% of your final grade.

Make up tests will be given **only** if you present written evidence, as soon as possible, that you did (or will have to) miss an exam for a legitimate reason. Medical conditions, religious time conflicts and university related sports competition are examples of reasons for a justified absence. A note that you have visited McKinley is **not** proof of a legitimate reason. Travel and leisure plans are not a legitimate reason.

Grading

Letter grades will be assigned at the end of the semester based on your combined score in the class (from quizzes, graded homework, midterms, and final). However, at any time during the semester you are welcome to ask us what grade your performance so far corresponds to so that you have an idea of how you are doing.

Suggestions for success in the class

- Please pace your studies throughout the semester. Follow the lessons regularly so you don't have to cram learning the material and doing the homework the day before an exam.
- Please let us know if you are having trouble with something, and do so **before** it becomes an issue on a test or exam. Do make use of office hours and tutoring hours.
- While reading your text we strongly encourage you to work through the proofs and examples yourself on paper. This is a very useful way to increase your understanding of the material.
- After reading something, try to summarize the important concepts. This will help create a mental framework into which to fit the problems you will be working on.

- We will setup an anonymous feedback page on the website. Please use it to improve the class.