

Mathematics 22B – Differential Equations

University of California, Davis, Spring 2009

Instructor: Derek Wise

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Web: <http://math.ucdavis.edu/~derek/teach/mat22b>

Office: MSB 2115

Office Hours: Monday and Wednesday 3:10–4:00PM, or by appointment.

Lecture: Monday, Wednesday, and Friday 2:10 to 3:00 PM, in WELLMN 2.

Teaching Assistants:

	email	office	office hours
Josh Clement	jclement@math.ucdavis.edu	MSB 3139	WF 12:00–1:00PM
Stephen Ng	stephenng@math.ucdavis.edu	MSB 3110	TR 2:00–3:00PM
Josh OYoung	oyounggo@math.ucdavis.edu	MSB 2204	TR 12:00–1:00PM

You can also get help at the *Math Café*—see <http://wrrc.ucdavis.edu/mathcafe/> for info.

The text for this course is *Elementary Differential Equations and Boundary Value Problems* (8th ed), by Boyce and DiPrima. We will cover the following sections of the textbook, in *roughly* this order:

1.1-1.3

2.1-2.5,2.8

3.1-3.9

7.1-7.9

Parts of Chapter 5 and/or 6, depending on time

Prerequisites: To take this course, you should know...

- **Calculus** at the level of Math 21C. You must know *calculus* to solve differential equations!
- **Linear Algebra** at the level of Math 22A, including such concepts and tools as: vector spaces and linear transformations, matrix algebra, linear independence, basis, eigenvalues and eigenvectors, characteristic polynomials.

Homework: Homework will be collected approximately once per week. It will be assigned in class, and the due date will be announced. Homework is due *at the beginning of class* on the due date, and will not be accepted late. If you miss a class, *you* are responsible for finding out what homework was assigned.

Doing a homework problem well means two things:

1. that you arrive at the correct solution by a valid method, and
2. that your write-up communicates the solution clearly!

You should write enough in your solution that another student in the class could read and understand what you were doing. For some problems, this might mean writing a few *words* to explain what calculations you are doing, what your variables are, what method you are using, etc.

On each homework assignment, *some* problems will be selected and graded.

Exams: There will be one midterm exam, tentatively scheduled for Monday, May 4. The final exam will be held on Wednesday, June 10, 6:00–8:00 PM, in the regular classroom. It *cannot* be taken early, so please check your exam schedule now to resolve any conflicts. The final exam will cover everything we discussed in the course.

Quizzes: I may give quizzes at random times during the quarter. Missed quizzes can *not* be made up. Grades on whatever quizzes I give will count toward your grade on the Midterm.

Grading Scheme: *Very Important!!!* We'll use the following nonstandard grading scale. Problems graded on homework, quizzes, and the final (excluding bonus problems) will be given between 0 and 5 points each, as follows:

5 points – The solution is “perfect”, meaning it displays complete and correct work, resulting in the correct answer, written up correctly.

4 points – The solution is correct, but there are mistakes of a purely notational nature, or the problem is not written up correctly.

3 points – The solution contains careless computational errors, arithmetic mistakes or small oversights which do not show misunderstanding of the fundamental techniques or concepts required to solve the problem.

2 points – The solution contains serious errors, but the core technique or concept being tested is displayed correctly.

1 point – The solution demonstrates a fundamental misunderstanding of the techniques and concepts being tested. However, there is still some merit to the rest of the work. If a correct beginning is present but the solution is incomplete, 1 point is also appropriate. No solution with an error in the essential technique of differential equations relevant to the problem will receive more than 1 point.

0 points – Any solution left blank, or any solution which does not contain at least a correct beginning. Also, any solution where an answer is given without work (when work is expected) may receive 0 points, and certainly no more than 1 point.

To see what letter grade your scores correspond to, use the following scheme:

4-5 (80% to 100%) is an ‘A’

3-4 (60% to 80%) is a ‘B’

2-3 (40% to 60%) is a ‘C’

1-2 (20% to 40%) is a ‘D’

0-1 (0% to 20%) is an ‘F’

I know this scale is probably quite different from what you are accustomed to. It was designed by S. Nelson to be fair and objective (very important for a big class like this one!), and to ensure that students who learn the concepts of differential equations pass the course, while those who do not, do not.

Your final grade in the course will be determined as follows:

35% Homework 25% Midterm (and Quizzes) 40% Final Exam

Other policies: Please turn off your cell phones and other devices during class. When you come to class, I expect that you will pay attention and especially not prevent others from doing so. Of course, if I catch you cheating I'll have fun flunking you and filing a report with Student Judicial Affairs.

Students with disabilities: Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Student Disability Center (SDC). Faculty are authorized to provide only the accommodations requested by the SDC. If you have any questions, please contact the SDC at 530-752-3184 or sdc@ucdavis.edu.

I hope you enjoy the course!