

Differential Equations - Math 225/226
Fall 2006

Instructors

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Text

- Custom Courseware: excerpts from Ordinary Differential Equations with Applications by Rice and Strange, 3rd Edition (obtained in the Bookstore)
- Applications Notes plus Maple Notes (obtained in class, \$5)

These courses emphasize the modeling aspects of differential equations and often leave some of the more technical and algorithmic material for you to learn independently, from examples and exercises in the textbook.

Evaluation

Quizzes: 40% (11 quizzes, 4% each) Every Friday starting September 22, a quiz is administered with two or three questions based on the material of the previous week. Its duration is 30 minutes. We count only 10 quizzes toward the course mark, dropping the lowest mark.

Final Exam: 60%. The final exam will be based on the technical material covered in the quizzes and assignments, as well as the applications studied in class. MATH 225/226 has been taught in this manner for the past several years, and recent past exams are a good guide to what to expect on the final.

Calculators: The CASIO FX 991 series calculator or equivalent non-programmable calculator (Gold sticker) will be allowed for quizzes and the final exam.

Schedule of weekly quizzes and exercises

Quizzes will cover the work of the *previous* week. E.g. at the end of the second week of class, the quiz will cover material from the first week.

Week	Beginning	Section	Examples	Exercises
1	Sep 11	1.1 DE Intro 1.2 DE Solutions 1.1 DE General Solutions 2.1 separable eqns.	1-5	1-15 1-7 (odd) 29-33 (odd) 1-13 (odd) and review sheet (p 2)
2	Sep 18	2.6 first order linear 2.7 Newton's second law	4-5 Box (p.104)	15-25 (odd),29,31
3	Sep 25	4.4 constant coefficients 4.5 repeated roots	1-3 1-2	5,11,13,15,21 3,7,11,13,17,21,41
4	Oct 2	4.5 complex roots 4.6-4.7 undamped and damped systems	1-5 Box (p.185)	9,21-29 (odd),45,47
5	Oct 9 Thanksgiving	5.1 non-homogeneous eqns 5.2 undetermined coefficients	1-5 1-5	7 3,5,11,21,31,33,35
6	Oct 16	5.4 beats and resonance 6.1 start of Laplace transforms	1 1-5	1-5 1-17 (odd)
7	Oct 23	6.1 Laplace transform 6.3 inverse Laplace 6.4 first shifting theorem 6.6 initial value problems	5,6 1-5 1,3,4,5 1-4	1-19 (odd) 1-199 (odd) 1,3,7,13,15,17,19 7-17 (odd)
8	Oct 30	7.4 step functions 7.5 second shifting theorem	1-4 1-4	7,9,13,19,21 5,9,11,13,15,23,25
9	Nov 6	7.6 initial value problems	1,2	1,3,5,9
10	Nov 13	9.5 systems: real eigenvalues	1-6	1,3,7,9,11
11	Nov 20	9.6 systems: complex eigenvalues	1-4 (Box p.434)	1,2,5,6,11
12	Nov 27	systems applications		