Kennesaw State University
Math 2306/52 and 2306/53
Ordinary Differential Equations
Dr. Dillon

Spring 2016

Updated 4/26/2016

Prerequisite: C or better in Calculus II

Section 52: MWF 10:00-10:50 am, Math Bldg (D) 112
Section 53: MWF 11:00-11:50 am, Math Bldg (D) 112

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Test 1 Blank | Test 1 Key
Test 2 Blank | Test 2 Key
Test 3 Blank | Test 3 Key
Sample Test 1 | Sample Test 2 | Sample Test 3 | Sample Final

Keys to sample tests: 1 | 2 | 3

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FINAL EXAM: Section 52: Monday, May 9, 2016, 10:30-12:30 pm
FINAL EXAM: Section 53: Wednesday, May 4, 2016, 10:30-12:30 pm

Classroom etiquette: Please respect the personal nature of learning in a small, interactive class by refraining from the use of cell phones and other distracting gadgets.

INSTRUCTOR: Dr. M. Dillon
OFFICE: Math Bldg 246
OFFICE HOURS: MW 12:30-2 pm; also by appointment
PHONE: 470 578 4977
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COURSE DESCRIPTION: An introduction to the theory of ordinary differential equations (ODEs), methods of solving first and higher order linear differential equations and linear systems, some applications in the sciences and engineering, the Laplace transform and its application in solving differential equations and linear systems, stability analysis and Euler’s numerical algorithm.


The plan is to cover 1.1-1.3, 2.1-2.4, 2.6.1, 2.7, 3.1-3.5, 4.1-4.4, 6.1-6.5 in the text.

TECHNOLOGY: Nothing specific is required for homework and no technology is permitted on quizzes and tests. You must be able to solve simple differential equations by hand and that includes anti-differentiation skills you learn in Calculus II. For more interesting problems, use whatever you have at hand. (Mathematica is now available to all KSU students and the text gives code for DE solving. Matlab is also available to students. This link takes you to a page with information about using Matlab for ODEs.)

GOALS: Upon completing this course students should be able to:

1. Use vocabulary correctly and categorize ODEs appropriately.
2. Find analytic and numerical solutions of certain types of ODEs by hand.
3. Identify and solve certain applications, including spring problems and circuit problems.
4. Understand when and how to use Laplace transforms to solve ODEs.
5. Understand basic ideas that apply to autonomous equations.

ATTENDANCE POLICY: Class attendance is required for this course. Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

GRADING: Your course grade will be calculated based on the following components.

1. Two out of three in-class tests count towards 40% of your final grade.
2. The final exam will count towards 40% of your final grade.
3. Ten out of approximately 13 quizzes will count towards 20% of your final grade.

TESTS: Tests are scheduled for Friday, February 12; Wednesday, March 16; and Wednesday, April 20. The lowest test grade is dropped, hence, NO MAKE-UP TESTS.

QUIZZES: Quizzes will be given with or without warning approximately once a week. Quizzes will be based on the assigned homework problems and you will have an opportunity at every class meeting to ask about the homework. Only the best 10 quizzes will count towards your grade, so approximately 3-5 quiz grades will be dropped, hence, NO MAKE-UP QUIZZES.

FINAL EXAM: The final is COMPREHENSIVE. See the schedule at the top of this page.

Q. Are MAKE-UPS available when we have a really good reason?
A. NO, NONE, NEVER— There are NO MAKE-UP exams available in this class!

WITHDRAW DATE: **Wednesday, March 2** is the last day to withdraw with a grade of “W.”
(For current policy on the number of withdrawals permitted, see
http://catalog.kennesaw.edu/content.php?catoid=24&navoid=2171#withdrawalfromclasses.)

RECORDING DEVICES: **The use of any and all electronic recording devices during class meetings of this course is expressly forbidden.** Electronic recording devices include, but are not limited to, cell phones, tape recorders, and video cameras. Under certain circumstances, students with special needs may request permission of the instructor to record classes. Permission granted under these circumstances will be strictly limited and all details will be in writing.

Accommodations: Any student with a documented disability or medical condition needing academic accommodations of class-related activities or schedules must contact the instructor immediately. Written verification from the KSU Student Disability Services (http://www.kennesaw.edu/stu_dev/dssw/welcome.html) is required. No requirements exist that accommodations be made prior to completion of this approved University documentation. All discussions will remain confidential.

Academic Dishonesty: **There is a zero tolerance policy on cheating in this course.** The use of any electronic devices, including phones, is expressly forbidden during tests and quizzes. Every KSU student is responsible for upholding the provisions of the Student code of Conduct, as published in the Undergraduate and Graduate catalogs. The Student Code of Conduct addresses the University’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic misuses of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Student Conduct and Academic Integrity department, which includes either an “Informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement.

Course Schedule with Homework Problems

**Subject to change!**

Due dates are noted to the left of each assignment. Please note that we have 45 meetings and every single one counts. We do not have time to waste. **Please come to class every day with your work prepared.**

There may be more than you can do here. Try to finish, but don’t become overwhelmed. **You should spend 1-2 hrs per day on homework.** If you work problems every day, your endurance will improve. It is most important to keep working.

1) 1/11/16: FIRST DAY OF CLASS: Review!
2) 1/13: Section 1.1, p. 5: 1-21 odd
3) 1/15: Section 1.2, p. 10: 1-11 odd, 4, 12
   1/18: MLK Day, No classes
4) 1/20: Section 1.3, p. 16: physics, mathematics, engineering, ecology
5) 1/22: Catch up.
6) 1/25: Section 2.1, p. 26: 1-25 odd
7) 1/27 Section 2.2, p. 34: 1-11 odd
8) 1/29: Section 2.3, p. 44: 1-15 odd
9) 2/1: Catch up.
10) 2/3: Section 2.4, p. 49: 1-5 odd
11) 2/5: Section 2.6.1 (Euler’s Method ONLY), p. 67: 1
12) 2/8: Section 2.7, p. 75: 1-11 odd
13) 2/10: REVIEW DAY
14) 2/12: TEST 1 on 1.1-1.3, 2.1-2.4, 2.6.1, 2.7
15) 2/15: Have questions ready about the test. Read 3.1.
16) 2/17: Section 3.1, p. 84: 1-17 odd
17) 2/19: Section 3.2, p. 92: 1-5 odd
18) 2/22: Section 3.2, p. 92: 7, 8, 9
19) 2/24: Section 3.2, p. 92: 11, 13, 15
20) 2/26: Section 3.3, p. 99: 1-9 odd, 10
21) 2/29 Section 3.4, p. 111: 1-13 odd
3/2: Last day to withdraw from classes with a W.
22) 3/2: Section 3.4, p. 111: 15-18
23) 3/4: Section 3.4, p. 111: 19, 20
24) 3/7: Section 3.4, p. 111: 21, 23, 25
25) 3/9: Section 3.5, p. 122: 1-5 odd
26) 3/11: Catch up.
27) 3/14: REVIEW DAY
28) 3/16: TEST 2 on 3.1-3.5
29) 3/18: Questions about the test.
31) 3/23: Section 4.2, p. 154: 1-17 odd
32) 3/25: Section 4.3, p. 159: 1-7 odd, 8
33) 3/28: Section 4.4, p. 170: 1-13 odd
34) 3/30: Catch up.
35) 4/1: Section 6.1, p. 221: 1-15 odd
4/4-4/8 Spring Break, no classes
37) 4/13: Section 6.3, p. 234: 1, 2, 5, 6, 11-16, 21, 22
38) 4/15: Section 6.4, p. 246: 1-19 odd
39) 4/18: REVIEW DAY
40) 4/20: TEST 3 on 4.1-4.4, 6.1
41) 4/22: Questions about the test
42) 4/25: Section 6.5, p. 256: 1-9 odd
43) 4/27: Section 6.3, p. 234: 1, 2, 5, 6, 11-16, 21, 22
   Examples a, b, c; Section 6.4, p. 246: 11-18
45) 5/2: http://tutorial.math.lamar.edu/Classes/DE/DiracDeltaFunction.aspx
   Examples 1, 2; Section 6.5, p. 256: 7, 8