

M427K
ADVANCED CALCULUS FOR APPLICATIONS I
UNIQUE #54315
SPRING 2015

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Lectures: MWF, 10:00am - 11:00am, CPE 2.208
Discussion sessions: TTh, 5:00pm - 6:00pm, RLM 4.102

Course webpage: www.ma.utexas.edu/users/bfroese/M427K_Spring2015

Required text: Boyce and DiPrima, *Elementary Differential Equations and Boundary Value Problems* (Tenth Edition)

Prerequisite: One of M408D, M408L, M408S or the equivalent, with a grade of at least C-.

Course description. M427K is a basic course in ordinary and partial differential equations, with Fourier series. It should be taken before most other upper division, applied mathematics courses. Geared to an audience primarily consisting of engineering and science students, the course aims to teach the basic techniques for solving differential equations which arise in applications. The approach is problem-oriented and not particularly theoretical. Most of the time is devoted to first and second order ordinary differential equations with an introduction to Laplace transformations, Fourier series, and partial differential equations at the end.

Grading. Your grade will be computed according to the following breakdown:

Homework: 10%

Two midterm exams: 50%

Final exam: 40%

Your final score will be rounded to the nearest integer and assigned a letter grade using a scheme at least as generous as the following:

A: 92-100, A-: 90-91, B+: 88-89, B: 82-87, B-: 80-81,

C+: 77-79, C: 63-76, C-: 60-62, D+: 58-59, D: 53-57, D-: 51-52, F: ≤ 50 .

Homework. Assignments will be posted on the course webpage. Assignments must be handed in at the beginning of the discussion session on the specified due date, which will typically be a Tuesday. A few of the problems will be selected for grading, and part of the mark will be for completeness. Problems will be graded for correctness, completeness, and clarity of the solutions. Solutions should be stapled together and written out with sufficient detail, clarity, and legibility that they can be easily understood by an average student in this class. No late assignments will be accepted.

Homework assignments will count for 10% of your final grade. There will be no opportunity to make up late assignments. However, the lowest score from this category will be discarded.

Exams. There will be two midterm exams held during the class time. These will take place on Monday March 2 and Monday April 13. Each midterm will count for 25% of your final grade. Missed midterms cannot be made up. However, your lowest midterm score will be replaced with your final exam score if this has the effect of raising your final grade.

The final exam will be held on Wednesday, May 13, 2:00-5:00pm. This exam will be cumulative and will count for 40% of your final grade.

A valid photo ID must be available to present upon request at all exams. For the final exam, you are permitted to bring a single 8.5"x11" double-sided sheet of notes. These notes must be written in your own handwriting; no typing or photocopying is permitted. No other notes, books, calculators, phones, or electronic devices are permitted during exams.

E-mail guidelines. When e-mailing the instructor or TA, please include the class name "M427K" in the subject line and sign the e-mail with your full name. This will make it easier for us to provide a prompt and helpful response.

If you need to make an appointment with me outside of my regular office hours, please suggest several time periods when you will be available during the following 2-3 days.

Special needs. Any student with a documented disability who requires academic accommodations should contact Services for Students with Disabilities (SSD) at (512) 471-6259 (voice) or 1-866-329-3986 (video phone).

Academic dishonesty. Each student in this course is expected to abide by the University of Texas Honor Code. All work you submit in this course, whether homework or exams, must be your own. Working together on assignments is allowed and encouraged. However, the assignment you turn in must be your own work; simply copying someone else's solutions is not acceptable. Instances of cheating will be dealt with severely.

Religious holy days. By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order

to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

Deadlines for dropping a course.

- January 23: Last day of the official add/drop period.
- February 4: Last day to drop a class for a possible refund.
- April 6: Last day an undergraduate student may, with the dean’s approval, drop a class except for urgent and substantiated, nonacademic reasons.

Tentative course schedule. Tentatively, we will work through the textbook according to the following schedule. However, as the semester progresses, this timeline may be altered to improve the learning experience.

Week of	Monday	Wednesday	Friday
Jan. 19	no class	1.1	1.2, 1.3
Jan. 26	2.1	2.2	2.4
Feb. 2	2.5	2.6	2.7, 3.1
Feb. 9	3.2	3.3	3.4
Feb. 16	3.5	3.5	3.6
Feb. 23	3.7	5.1	review
March 2	Midterm #1	5.2	5.3
March 9	5.4	5.5	6.1, 6.2
March 16	no class	no class	no class
March 23	6.3	6.4	6.5
March 30	6.6	10.1	10.2
April 6	10.3	10.4	review
April 13	Midterm #2	10.5	10.6
April 20	10.7	10.8	7.2, 7.3
April 27	7.5	7.6	7.8
May 4	extra	extra/review	review
Final exam: May 13, 2:00-5:00pm			