

M427J: Differential Equations with Linear Algebra, Spring 2017

Unique # 54480

Course Syllabus

This is an introductory course in ordinary and partial differential equations, two of the most important tools in modern science and engineering. The aim of the course is to teach basic techniques for solving simple differential equations that arise in applications. Topics that will be covered in the class include: first and second order linear ODEs, system of first-order linear ODEs with linear algebra, simple PDEs as well as the Fourier method for solving linear PDEs with constant coefficients.

Prerequisite: The prerequisite for this class is one of M408D, M408L, or M408S with a grade of at least C-. Note that there will be a prerequisite check from the Mathematics Department.

Class Time and Location: The class will meet T Th 11:00-12:30AM @ WRW 102.

Problem Session: The problem section will meet M W 3:00-4:00PM @ WRW 102.

Instructor. Yuan He

Office: RLM 13.140

Email: yuan@math.utexas.edu

Office Hours: TTh 1:30PM-3:00PM (+ appointment).

Teaching Assistant. TBA

Office: TBA

Email: TBA@math.utexas.edu

Office Hours: TBA

Textbook:

Differential Equations and Their Applications, 4th edition

Martin Braun
Springer, ISBN 0-387-97894-1

Course Webpage: All the homework will be posted on the university teaching tool, the Canvas system:

<https://canvas.utexas.edu/>

Homework and Exams: 1) There will be 13 homework sets, one homework set each week. Homework 01-12 will be graded. The lowest score from these 12 homework will be dropped when calculating your final score. No late homework will be accepted. 2) There will be two in-class exams and a final exam. In general, no makeup exam will be arranged.

Grading Policy. The final grade will be weighted roughly as follows:

Homework 20%, Exam I 20%, Exam II 20%, Final Exam 40%.

The cutoffs for the letter grades are as follows:

89.5%	: Grade A
86.5%	: Grade A-
83.5%	: Grade B+
80.5%	: Grade B
77.5%	: Grade B-
74.5%	: Grade C+
71.5%	: Grade C
68.5%	: Grade C-
65.5%	: Grade D+
62.5%	: Grade D
59.5%	: Grade D-
<59.5%	: Grade F

Computing Resources: The mathematics undergraduate computer lab in RLM 7.122 is open to all students enrolled in a math course. The lab is open whenever the RLM building is open. You will need an account to use the lab. Bring your EID with you when you visit the lab to sign up for an account.

Important Dates:

- 01/17, First day of class for M427J

- 01/20, Last day of official add/drop period
- 02/01, Last day to drop a class for a possible refund
- 02/21, In-class Exam I for M427J
- 03/13-18/2017, No Class (Spring Break Holiday)
- 03/28, In-class Exam II for M427J
- 04/03, Last day to drop a class with dean's approval
- 05/04, Last day of class for M427J
- 05/10, Final exam for M427J

Miscellaneous.

- The University of Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471- 6259, 471-6441 TTY.
- It is the policy of The University of Texas at Austin that “a student who misses classes or other required activities, including examinations, for the observance of a religious holy day should inform the instructor as far in advance of the absence as possible, so that arrangements can be made to complete an assignment within a reasonable time after the absence”.
- The following recommendations regarding emergency evacuation are from the Office of Campus Safety and Security:
 1. Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
 2. Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
 3. Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
 4. In the event of an evacuation, follow the instruction of faculty or class instructors.

5. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
6. Behavior Concerns Advice Line (BCAL): 512-232-5050
7. A link to information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency
8. Counseling and Mental Health Center Student Services Bldg (SSB), 5th Floor Hours: M–F 8am–5pm
512 471 3515 (appointments) 512 471 CALL (crisis line)

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Lecture Schedule

- 01/17 (T): Logistics & Section 1.1 HW #01 Handout
- 01/19 (Th): Section 1.2
- 01/24 (T): Section 1.4 & 1.9 (I) HW #02 Handout
- 01/26 (Th): Section 1.9 (II)
- 01/31 (T): Section 1.10 HW #03 Handout
- 02/02 (Th): Section 2.1
- 02/07 (T): Section 2.2 (I) HW #04 Handout
- 02/09 (Th): Section 2.2 (II)
- 02/14 (T): Section 2.3 & 2.5 HW #05 Handout
- 02/16 (Th): Section 2.4
- 02/21 (T): **Exam I**
- 02/23 (Th): Section 2.8 (I)
- 02/28 (T): Section 2.8 (II) HW #06 Handout
- 03/02/ (Th): Section 2.8 (III)
- 03/07 (T): Section 3.1 HW #07 Handout
- 03/09 (Th): Section 3.2
- 03/14 (T): Spring Break;
- 03/16 (Th): Spring Break;
- 03/21 (T): Section 3.3 HW #08 Handout
- 03/23 (Th): Section 3.4

- 03/28 (T): **Exam II**
- 03/30 (Th): Section 3.5
- 04/04 (T): Section 3.6 HW #09 Handout
- 04/06 (Th): Section 3.7 (I)
- 04/11 (T): Section 3.7 (II) HW #10 Handout
- 04/13 (Th): Section 5.1
- 04/18 (T): Section 5.2 (I) HW #11 Handout
- 04/20 (Th): Section 5.2 (II)
- 04/25 (T): Section 5.3 HW #12 Handout
- 04/27 (Th): Section 5.4
- 05/02 (T): Section 5.5; HW #13 Handout
- 05/04 (Th): Review; The last day of the class;
- 05/10 (W): **Final Exam** Time: 7:00-9:00PM (2 hours); Location: TBA

There are probably minor changes on the schedule. Those changes will be announced in class.