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 which arise in applications. Topics that will be covered in the class include: first and second order linear ODEs, stability theory of nonlinear ODEs, Laplace transform, simple PDEs as well as the Fourier method for solving linear PDEs with constant coefficients.

**Prerequisite.** The prerequisite for this class is Mathematics 408D or equivalent. Note that there will be a prerequisite check from the Mathematics Department.

**Class Time and Location.** The class will meet M W F 3:00PM-4:00 PM @ CPE 2.214.

**Problem Session.** The problem section will meet T TH 3:30PM-4:30PM @ GAR 0.102.

**Instructor.** Kui Ren  
Office: RLM 10.170  
Phone: 512-471-3152  
Email: ren@math.utexas.edu  
Office Hours: M W F 2:00-3:00PM + Appointments.

**Teaching Assistant.** Nick Rauh  
Office: RLM 11.112  
Phone: 512-475-9521  
Email: nrauh@math.utexas.edu  
Office Hours: TBA.

**Homework and Exams.** There will be eleven homework sets, one homework set each week. The lowest two scores from your homework will be dropped when calculating your final score. There will also be two in-class exams and a final exam. Note that, in principle, no late homework will be accepted and no makeup exams
will be arranged.

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

Homework 30%, Exam I 20%, Exam II 20%, Final Exam 30%.

The letter grades are distributed as follows:

- 90% - 100% : Grade A
- 80% - 89% : Grade B
- 70% - 79% : Grade C
- 60% - 69% : Grade D
- 0% - 59% : Grade F

**Course Webpage.** All the homeworks will be posted on the university teaching tool, the blackboard system:

https://courses.utexas.edu/webapps/portal/frameset.jsp

**Textbook.**

Elementary Differential Equations and Boundary Value Problems, 8th edition
William E. Boyce and Richard DiPrima

**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 you must notify me at least fourteen days prior to the classes scheduled on dates you will be absent to observe a religious holy day.
M427K Lecture Schedule.

- 08/27 (W): Introduction
- 08/29 (F): Sections 1.2
- 09/01 (M): No Class (Labor Day)
- 09/03 (W): Sections 1.1, 2.1
- 09/05 (F): Section 2.1 (Continued)
- 09/08 (M): Sections 2.2
- 09/10 (W): Section 2.6 (Homework #1 Due)
- 09/12 (F): Section 2.6 (Continued)
- 09/15 (M): Section 2.5
- 09/17 (W): Section 2.5 (Continued) (Homework #2 Due)
- 09/19 (F): Section 2.4
- 09/22 (M): Section 3.1
- 09/24 (W): Section 3.2 (Homework #3 Due)
- 09/26 (F): Review
- 09/29 (M): Exam I
- 10/01 (W): Section 3.3
- 10/03 (F): Section 3.4
- 10/06 (M): Section 3.5
- 10/08 (W): Section 3.6 (Homework #4 Due)
- 10/10 (F): Section 3.7
- 10/13 (M): Sections 3.7 (Continued)
- 10/15 (W): Sections 4.2 (Homework #5 Due)
- 10/17 (F): Sections 4.3
• 10/20 (M): Section 5.1
• 10/22 (W): Section 5.2 (Homework #6 Due)
• 10/24 (F): Section 5.2 (Continued)
• 10/27 (M): Section 5.3
• 10/29 (W): Section 5.4 (Homework #7 Due)
• 10/31 (F): Review
• 11/03 (M): **Exam II**
• 11/05 (W): Sections 5.6
• 11/07 (F): Section 7.2
• 11/10 (M): Section 7.3
• 11/12 (W): Section 7.3 (Continued) (Homework #8 Due)
• 11/14 (F): Sections 7.1 and 7.4
• 11/17 (M): Section 7.5
• 11/19 (W): Section 10.1 (Homework #9 Due)
• 11/21 (F): Section 10.2
• 11/24 (M): Section 10.3
• 11/26 (W): Section 10.4 (Homework #10 Due)
• 11/28 (F): No Class (Thanksgiving Holiday)
• 12/01 (M): Section 10.5
• 12/03 (W): Section 10.8 (Homework #11 Due)
• 12/05 (F): Review (Last Day of Class)

• 12/10 (W): **Final Exam** Time: 7:00-10:00PM; Location: WEL 1.316

Note that there are probably minor changes on the schedule. Those changes will be announced in class.