MATH 372K (56975)**: Partial Differential Equations (PDEs) and Applications – Spring26**

General Information

Instructor: Irene M. Gamba (gamba@math.utexas.edu)
Lecture Room: PMA 6.104 - T-Th 9:30am - 10:45am - **Office hours:** TBA

Course webpage: ***http://www.ma.utexas.edu/users/gamba/S26/S26-m372K-p.pdf***

Required text:

Textbook: Applied Partial Differential Equations with Fourier Series and Boundary Value Problems (5th Edition) (Featured Titles for Partial Differential Equations) by Richard Haberman (4^{th} edition works as well)

Complementary textbook: Partial Differential Equations for Scientists and Engineers (Dover Books on Mathematics) by Stanley J. Farlow

Description

Syllabus: Partial differential equations arise as basic models of flows, diffusion, dispersion and vibrations. Topics include first and second order partial differential equations and classification, particularly the wave, diffusion, and potential equations, their origins in applications and properties of solutions, characteristics, maximum principles, Green's functions, self-adjoint operator, eigenvalue problems, Fourier and general eigenfunction expansion methods. We will attempt to cover issues from most of the first 12 chapters, with some sections skipped. Some material will be covered from the complementary textbook. Use of Matlab or Mathematica is encouraged on some assignments.

Prerequisites

M427K, with a grade of at least C. One of (linear algebra courses) M311K or M340C or M341 or M346 and/or M361K or M365C is also recommended.

Policies

Homework: Homework sets will be assigned weekly or biweekly throughout the semester. It is acceptable for students to help each other with the homework sets; however, each student must hand-write up and submit their own work.

Exams: There will be three midterm exams. The tentative dates are

Midterm Exam 1: Thursday February 26^{th} - in class test.
Midterm Exam 2: Thursday April 26^{th} - in class test.
There is no Final exam for this class

Course grading policy: 100 points from Homework + 300 points from Midterms (2 at 150 each)
The highest possible cumulative grade from the midterms and homework is 400 pts. Your final grade will be calculated according to the table, using your total cumulative score from the Homework and Midterms

above 340 A grade
from 330-339 A- grade
from 320-329 B+ grade
from 270-319 B grade
from 260-269 B- grade
from 250-259 C+ grade
from 200-249 C grade
from 190-199 C- grade
from 160-189 D grade
from below 160 F grade

In the computation of the homework average, one homework grade (lowest) will be dropped.

Exam policy: Books are not permitted during midterms. A valid photo ID must be available to be checked at all exams. Make-up exams will not be given so please remember the exam dates.
Exceptions will be considered under extraordinary circumstances ONLY. **This includes illness or observance of a religious holiday** (with 2 weeks advance notice). Proper documentation (such as a doctor's note) is required in all illness cases.
Honor code: The core values of the University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness and respect toward.

Quantitative Reasoning flag course:

This course carries the **Quantitative Reasoning flag**. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

Please, make sure that cell phones are turned off.

The Registrar's Calendar Links to an external site. notifies us that the *main drop deadline* to include is Wednesday, November 20. This is the last day an undergraduate student may, with the dean's approval, withdraw from the University or drop a class except for urgent and substantiated nonacademic reasons. It is the last day an undergraduate student may change registration in a class to or from the pass/fail basis.

CLASSROOM SAFETY AND COVID-19
To help preserve our in-person learning environment, the university recommends the following.

- **If you develop COVID-19 symptoms or feel sick, stay home and contact the University Health Services'**

Links to an external site. Nurse Advice Line at 512-475-6877. For students, if you need to be absent from class, contact Student Emergency Services

- **Links to an external site. and they will notify your professors.**
- **Behavior Concerns and COVID-19 Advice Line**
- **Links to an external site. (BCCAL) remains available as the primary tool to address questions or concerns from the university community about COVID-19.**
- Students who test positive should contact BCCAL.

Students Resources: The University of Texas at 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, 471-4641 TTY.

Further resources are available at **Counseling and Mental Health Center**