

Math 110: Introduction to partial differential equations

Instructor: Vishal Patil
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Spring 2026
Time: TuTh 12:30pm - 1.50pm
Place: CSB 001

Course page: <https://canvas.ucsd.edu/courses/75678>

Outline: An applied introduction to partial differential equations (PDEs). Topics include: origin and classification of PDEs, diffusion equation, wave equation, Laplace's equation in different domains; the method of characteristics, Fourier series, orthogonal expansions, separation of variables; Sturm-Liouville theory, eigenvalue problems.

Prerequisites: Math 18 / Math 20F / Math 31AH, and Math 20D, and Math 20E / Math 31CH

TA and discussion sections: The TAs for the class are

- Zihan Shao, Office: HSS 5067, Email: z6shao@ucsd.edu
- Vitor Borges, Office: HSS 5044, Email: vborges@ucsd.edu

There will be three discussion sessions

- Tuesdays 5:00pm - 5:50pm, in HSS 2150 (Zihan Shao)
- Tuesdays 6:00pm - 6:50pm, in HSS 2150 (Zihan Shao)
- Tuesdays 7:00pm - 7:50pm, in HSS 2150 (Vitor Borges)

Office hours: I will hold office hours on Mondays and Tuesdays 10:00am - 11:00am (APM 6341). The TAs will also hold office hours - see Canvas announcements for schedule.

Homeworks: Homework is assigned, collected, and partially graded regularly. Gradescope will be used to collect and grade homework and exams. *Note: No late homeworks will be accepted without written verification of a valid excuse (e.g. hospitalization, court appearance, etc.)*

Exams: There will be two midterms (in-class) and one 3-hour final exam. All exams will be closed-book and closed-note exams. The final exam will be cumulative.

- Midterm 1: 12:30 pm - 1:50 pm, Tuesday, April 21, 2026, CSB 001 (same time and place as lectures).
- Midterm 2: 12:30 pm - 1:50 pm, Tuesday, May 19, 2026, CSB 001 (same time and place as lectures).
- Final Exam: 11:30 am - 2:29 pm, Monday, June 8, 2026, CSB 001 (same place as lectures).

Note: No makeup exams will be allowed without written verification of a valid excuse (e.g. hospitalization, court appearance, etc.)

Grading policy: The final course grade will be determined based on the homework 10%, midterm 1 (25%), midterm 2 (25%) and final exam (40%). The final course grade will be curved.

Course resources: The following books are good companions for the class.

- J. David Logan, Applied Partial Differential Equations, 3rd ed., Springer, 2015. (UCSD has access to the ebook)
- Walter A. Strauss, Partial Differential Equations, 2nd ed., John Wiley & Sons, 2008.

Accommodations: Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities: <https://osd.ucsd.edu>. Students are required to discuss accommodation arrangements with instructors and OSD liaisons in the department in advance of any exams or assignments.

Academic integrity: All students are expected to conduct themselves with academic integrity. Violations of academic integrity will be treated seriously. Please see <https://academicintegrity.ucsd.edu>.