MATH 173 Theory of Partial Differential Equations
Winter 2025, Syllabus

What is a Syllabus

Course Description A rigorous introduction to PDE accessible to advanced undergraduates. Elliptic, parabolic, and hyperbolic equations in many space dimensions including basic properties of solutions such as maximum principles, causality, and conservation laws.

Instructor
Eugenia Malinnikova, 383 E
E-mail: eugeniam@stanford.edu
Office hours: Tuesday, Thursday 3-4 pm and by appointment You can always drop me an email with questions related to the course or to ask for an appointment either in person or via zoom. Please write "MATH 173" in the subject of your email.

Course assistant
Alexandra Stavrianidi, 381 L
E-mail: alexst@stanford.edu
Office Hours: To be announced by the end of the first week of the classes.

Both of us are available by appointment, don't hesitate to arrange a meeting, show up for office hours just to say hi, or listen to the questions others are asking. We hope to meet each and every one of you.

Lectures
TuTh 1:30 pm- 2:50 pm, 380-380F.

Exams
There will be a midterm exam and a final exam.

Grading Policy
The weekly homework, writing assignment, and exams are weighted as follows:
- Homework: 30% (two lowest scores dropped)
- Midterms: 30%
- Final exam: 40%

Course website
Course announcements, problem sets and solutions will be posted on Canvas.

Textbook
We will be using Evans, Partial Differential Equations, Second edition, and Lecture notes by Andras Vasy which will be made available on Canvas (these are for Stanford students only, please, do not distribute).

Another recommended text is Partial Differential Equations, Gerald Teschl. It covers many topics of this class, but not all of them.

Problem Sets

- There will be nine problem sets. Assignments can be found on Canvas (at least) one week before they are due.
- Problem sets are due by Friday (starting January 10th), at 11:59 pm.
- No late solutions will be accepted, so please do not try to upload your files at the very last moment. Two lowest scores will be dropped. The final score for the problem sets will be calculated as the average of the seven best of your scores, each with an equal weight.
- You may (and are encouraged to) discuss the problems with others in the class, but you must write up your own solutions.
- This is a three unit course which should correspond to nine hours a week work load for the students. So I expect you to spend 4-5 hours weekly on the revision of lectures and problem sets. In case you spend much less and would like an extra challenge, please, send me an e-mail, I would be happy to provide additional problems. If you regularly spend over seven hours on problem set a week, please arrange a meeting with me.

Access and Accommodations Stanford is committed to providing equal educational opportunities for disabled students. Disabled students are a valued and essential part of the Stanford community. We welcome you to our class. If you experience disability, please register with the Office of Accessible Education (OAE). Professional staff will evaluate your needs, support appropriate and reasonable accommodations, and prepare an Academic Accommodation Letter for faculty. To get started, or to re-initiate services, please visit http://oae.stanford.edu/.

If you already have an Academic Accommodation Letter, please use the googleform https://goto.stanford.edu/math173oae to upload it and detail the specific accommodations you will need in this course. Letters are preferred by the end of week 2, and at least two weeks in advance of any exam, so we may partner with you and OAE to identify any barriers to access and inclusion that might be encountered in your experience of this course. New accommodation letters, or revised letters, are welcome throughout the quarter; please note that there may be constraints in fulfilling last-minute requests.

Academic Integrity The Honor Code articulates Stanford University's expectations of students and faculty in establishing and maintaining the highest standards in academic work. Examples of conduct that have been regarded as being in violation of the Honor Code (and are most relevant for this course) include copying from another's examination paper or allowing another to copy from one's own paper; plagiarism; revising and resubmitting a quiz or exam for regrading, without the instructor's knowledge and consent; representing as one's own work the work of anotherSee http://communitystandards.stanford.edu/ for more information on the Honor Code.