

M788 Partial Differential Equations I

Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Instructor

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Office Hours

MW 2–3pm, F 1–2pm, and by appointment. If I'm in my office and you don't have an appointment, I can almost always take 15 minutes to answer a question.

Text

An Introduction to Partial Differential Equations,
Michael Renardy, Robert C. Rogers,
Texts in Applied Mathematics 13, Springer–Verlag, 1992.

Grading

2 Quizzes	25 points each
1 Midterm	50 points
1 Final	75 points
4 Homework Assignments	25 points each

275 points total

Topics Covered

Chapters 1–4 from the text including the following: Laplace, heat, and wave equations; characteristics; Cauchy–Kovaleskaya Theorem; Holmgren's Uniqueness Theorem; conservation laws and shocks; Rankine–Hugoniot condition; Lax shock condition; maximum principles; Arzela–Ascoli Theorem.

Equal Opportunity Statement

The Mathematics Department is committed to equal opportunity in education for all students, including those with documented physical disabilities or documented learning disabilities. University policy states that it is the responsibility of students with documented disabilities to contact instructors during the first week of each semester to discuss appropriate accommodations to ensure equity in grading, classroom experiences and outside assignments.

Academic Conduct

Bring your student identification to all exams. Work independently on all exams and quizzes. Behaviors inappropriate to test taking may disturb other students and will be considered cheating. Don't talk or pass notes with other students during an exam. Homework may be discussed freely. If you are unclear as to what constitutes cheating, please consult with me.