Instructor: Hongjie Dong
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Division of Applied Mathematics
Brown University
182 George St., Room 227.

Lectures: MWF, 10:00–10:50, Barus & Holley 165.
Office hours: Monday 11:00–11:50 am, Wednesday 2:30 - 3:30 pm.
Grader/Teaching Assistant: to be announced.

Outline of the course: This is the second part of a year-long course, which serves as an introduction to the theory of partial differential equations. I will take materials from my notes and the supplementary books listed below.

We will cover some basic properties of second-order elliptic and parabolic equations including the Schauder estimates, $L_p$ estimates, the DeGiorgi–Nash–Moser and Krylov–Safonov estimates for elliptic (and parabolic) equations, partial regularity for elliptic systems, harmonic maps, etc.

Reference books:


Prerequisite: Basic knowledge of real and functional analysis (Lebesgue integral, Banach and Hilbert spaces).

Grades: There will be a take-home final exam, and a few (about five) homeworks will be assigned during the semester. The final grade will be based on them (Homeworks 70%, Final exam 30%).