

Course Announcement
Math 569: Partial Differential Equations II
Spring 2019

Instructor: Matthew Blair

Meeting times: MWF 11-11:50am, Room TBD

Description: This course will be a sequel to Math 463/513 *Introduction to Partial Differential Equations*, covering advanced topics beyond the usual curriculum. Much like the introductory course, this one will treat methods in elliptic, parabolic, and hyperbolic PDE. However, here there will be greater emphasis will on differential operators with variable coefficients, where explicit representations of solutions are often difficult to come by. Nonetheless, we will examine the methods which allow us to see the existence, uniqueness, and stability of solutions.

Texts:

- M. Renardy and R. C. Rogers, *An Introduction to Partial Differential Equations*, Second Edition (Required)
- L. C. Evans, *Partial Differential Equations* (Optional)
- G. B. Folland, *Introduction to Partial Differential Equations* (Optional)

Homework: Weekly reading assignments and 4 graded homework assignments. No exams.

Prerequisites: Math 463/513. Consult the instructor if you've had an equivalent course outside of UNM.

Tentative Syllabus:

- Review of functional analysis and operator theory
- Introduction to distributions
- Sobolev spaces
- Elliptic boundary value problems, including layer potentials
- Parabolic and Hyperbolic Evolution Equations
- Semigroups