MA483–Differential equations II
Introduction to partial differential equations

This will be an introductory course in partial differential equations which is targeted at advanced undergraduates in mathematics, science and engineering and beginning graduate students in engineering. In this course, we will introduce the most important examples of partial differential equations: first order hyperbolic equations, heat equation, wave equation and Laplace's equation. We will study how these equations arise in physics and engineering applications and indicate how to use symmetry methods and separation of variables to find solutions. Some time will also be spent discussing numerical methods and approximating solutions.

If time permits, we will consider eigenvalues of differential operators and other topics depending on the interests of the class.

The text for the course will be: *Introduction to partial differential equations,* by Walter Strauss.

The prerequisite for this course is a background in Advanced calculus such as MA432 or MA471.

For additional information, please contact the instructor.

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MA533–Introduction to partial differential equations

MA 533 is an introduction to the theory of partial differential equations. We will cover first order equations from several points of view and then we will study prototypical second order equations of elliptic, parabolic and hyperbolic type which model, respectively, electrostatics, heat diffusion and wave motion. The essential prerequisite for this course is a working knowledge of advanced calculus.

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Note: The main distinction between these two courses is the level of mathematical sophistication expected of the students. MA483 is intended for beginning graduate students in science and engineering and advanced undergraduates. MA533 is directed at graduate students in mathematics and other graduate students with a strong background in mathematics.