

**MAP 4305/5304 - DIFFERENTIAL EQUATIONS 2**  
**SYLLABUS**

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INSTRUCTOR: Paul Robinson

CLASS TIME: MWF period 2 (08:30-09:20)

CLASS ROOM: LIT 101

OFFICE HOURS: To be determined

TEXT: Nagle, Saff and Snider, *Fundamentals of Differential Equations and Boundary Value Problems*, Edition 9 (or 8 or 7)

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This course builds on the foundation provided by the course on 'Elementary Differential Equations'. Most of our time will be spent on chapters 8, 10 and 9 of the adopted text (in the indicated order).

In Chapter 8 we seek solutions to differential equations in the form of power series; many differential equations of importance in applications may (and shall) be solved in this way. In Chapter 10 we are introduced to PDEs - partial differential equations - which involve functions of two or more variables and their partial derivatives; our approach to solving such equations will put us in touch with Fourier series and boundary value problems, and will be applied to some classical PDEs of importance throughout the physical sciences. In Chapter 9 we consider systems of differential equations (usually linear systems): in theory, these may involve  $n$  equations in  $n$  unknowns; in practice,  $n$  will be 2 or 3 and familiarity with  $2 \times 2$  and  $3 \times 3$  matrices will be assumed.

There will be four in-class tests and four in-class pretests during the semester. Grades will be assigned on the basis of *either* (i) all four tests *or* (ii) three tests and four pretests. The grading scale will be the 'standard' 90% for A, 80% for B, 70% for C, and so on, with +4% for + grades and -3% for - grades; for example, 77% is the B- threshold and 84% is the B+ threshold.