



Department of Mathematics and Statistics

Colloquium

Tuesday November 6

AMB 164 4:00 - 5:00 pm

Derivatives, Difference Matrices, and Differential Equations (Calculus), Part II

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Abstract

* Abstract: In connection with several of my classes and many of my mentored student projects, I have lately been applying numerical methods to a wider class of problems than just the nonlinear elliptic PDE of my core research. To this end I have written up some notes in the form of a terse textbook, complete with over 100 homework problems. It is a theme of the text that linear problems from ODE and PDE can generally be expressed and solved as a single linear system, and nonlinear problems can be generally investigated via Newton's method. I will review difference matrices as a way to work with derivatives, and then focus on graphical demonstrations of Matlab codes for a number of examples.

Refreshments at 3:45