Title: Numerical Analysis of Partial Differential Equations
Textbook: Partial Differential Equations with Numerical Methods by Stig Larsson & Vidar Thomee

Description: Theory and implementation of numerical methods for boundary value problems in partial differential equations (elliptic, parabolic, and hyperbolic). Finite difference and finite element methods and projection methods: convergence, stability, error estimates and computations.

Main Topics:
1. Some PDEs from physics and classifications
2. Finite Difference Methods for Two-Point Boundary Value Problems
3. Finite Element Methods for Two-Point Boundary Value Problems
4. Numerical Integration
5. Finite Difference Methods for Elliptic Problems
6. Finite Element Methods for Elliptic Problems
7. Finite Difference Methods for Parabolic Problems
8. Finite Element Methods for Parabolic Problems
9. Numerical solutions for Wave Equations
10. Discontinuous Galerkin methods

Grading Policy:
1. 5 Assignments: 30 %
2. Midterm Exam: 30 %
3. Final Exam: 40 %

Office hours: Tuesday, from 9:00 AM till 12:00 noon
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