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.

Assessment:
- Midterm Exam 30%
- Homework and other Assignments: 30%
- Final Exam: 40% (Comprehensive; Date and Location: To Be Announced)

Instructor:
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Office hours:
Monday and Wednesday: 11:30 am - 2:30 pm (or set an appointment if needed)

Main Topics:
1. Two-Point Boundary Value Problem
2. Finite Difference Methods for Two-Point Boundary Value Problems
3. Finite Element Methods for Two-Point Boundary Value Problems
4. Numerical Integration
5. Elliptic Problem
6. Finite Difference Methods for Elliptic Problems
7. Finite Element Methods for Elliptic Problems
8. Parabolic Problem
10. Finite Element Methods for Parabolic Problems
11. Hyperbolic Problem
12. Finite Difference Methods for Hyperbolic Problems
13. Finite Element Methods for Hyperbolic Problems