SPRING 2006

New   Courses in the Numerical Solution of Partial Differential Equations (PDEs)

Survey of Numerical Methods for PDEs

Instructor: Janet Peterson
MAD5932
10:10-11 MWF
152 Dirac Science Library

Goals: to provide applications oriented students with a survey of numerical techniques for solving PDEs; case studies from areas such as fluid dynamics, biology, meteorology, and engineering will be provided.

Methods introduced in course:

finite difference techniques • finite element techniques • discontinuous Galerkin methods
finite volume methods • boundary element methods

Computational Finite Element Methods

Instructor: Michael Navon
MAP5932
12:20-1:10 MWF
152 Dirac Science Library

Goals: to combine theory with the numerical illustration of test cases (Euler equations and 2-D elliptic equations) of finite element software; students will develop ability to write a 2-D time dependent finite element code

Applications will be drawn from engineering; topics include:

Navier-Stokes equations (compressible and incompressible) • shallow water equations
thermal fluids • geophysical fluids • mesh refinement in one and two dimensions

Prerequisites for both courses:
Proficiency in Fortran 90 or C/C++
Working knowledge of PDEs or consent of instructor

For more information see http://www.csit.fsu.edu/education/