

ISC 5907 - Directed Individual Study
Introduction to the Finite Difference Method
Summer 2016

Instructor:	John Burkardt email: jburkardt@fsu.edu office: 445 DSL
Website:	http://www.sc.fsu.edu/~jburkardt/classes/fdm_2016/fdm_2016.html
Time:	Tuesdays, 3:30-5:30, 499 DSL

Course Description: This course will present the theory, techniques, and applications of the finite difference method, a procedure which converts a mathematical model involving differential equations into a system of algebraic equations suitable for computational processing.

The course will make substantial use of materials created by professor Lorena Barba of Boston University, including a series of videotaped classroom lectures, and a set of 12 Python notebooks collectively titled “Twelve Steps to Navier-Stokes”.

Students will:

- know the form of a number of standard differential equations to which finite differences can be applied;
- be able to convert differential equations into algebraic equations using finite difference methods;
- be able to write computational procedures to set up and solve finite difference models;
- know about issues of consistency, stability, and convergence.

Grading: The student’s grade for the course will be based entirely upon a sequence of weekly programming assignments.

University Attendance Policy: Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy: The Florida State University Academic Honor Policy outlines the University’s expectations for the integrity of student’s academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to . . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida

State University. (Florida State University Academic Honor Policy, found at <http://academichonor.fsu.edu/policy/policy.html>.)

Americans with Disabilities Act Students with disabilities needing academic accommodation should:

- register with and provide documentation to the Student Disability Resource Center; and
- bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the Student Disability Resource Center, sdrc@admin.fsu.edu, web page: <http://www.disabilitycenter.fsu.edu/>.

Syllabus Change Policy Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.