SCHOOL OF COMPUTER SCIENCE

CS 5753 SCIENTIFIC COMPUTING II
SPRING 2011

Topic: Dynamic Optimization

Instructor: S. Lakshmivarahan

Class Time: T-Th 1.30 – 2.45 PM

Class Room: Felgar Hall Room 320

Office Hours: T-TH from 9.00 to 10.00am
T-TH from 3.00 to 3.30pm

Course outline:

1. Review of static optimization - unconstrained, constrained (equality and inequality)
2. Dynamic optimization - Euler -Lagrange equations
3. Hamiltonian formulation - Hamiltonian equations
4. Introduction to the Pontryagin's minimum principle
5. Dynamic Programming and Hamilton-Jacobi equation
6. Applications to data assimilation, control of Engineering and Economic systems

Text book: Since there is no single text book that adequately covers these topics, we will provide scanned copies of notes for several topics.

Final Exam: Wednesday, May 11, 2011 from 1.30 to 3.30 pm in FH 320

Grading: Assignments 8-10, one midterm, and a final. Assignments – 40%, Mid-term- 30%, Final Exam 30%. Grading scale: A is 90 or above; B is 80 to 89; C is 70 to 79 and D is 60 to 69. Below 60 is F.

For more information contact the instructor: varahan@ou.edu