CBEMS 195: Numerical Methods in Chemical Engineering  
Winter Quarter, 2009

UCI Catalogue Data  
(to appear):  
CBEMS 195 Numerical Methods in Chemical Engineering (3). An introduction to the fundamentals of numerical analysis and the computer algorithms in MATLAB for the solution of chemical engineering problems. Prerequisites: CBEMS 40B, CBEMS 110, CBEMS 120A, or consent of instructor.

Course Schedule:  
(Monday, Wednesday) 9:30 – 10:50 am in ET 204

Web Page:  
https://eee.uci.edu/09w/15190/

Instructor:  
Professor Ali Mohraz  
744F Engineering Tower  
Email: mohraz@uci.edu  
Office phone: 824-2028

Office Hours:  
Wednesday, 4:00 – 5:00 in 912 Engineering Tower, or by appointment

Course Description:  
Course topics include computational error analysis, numerical solution of systems of linear and nonlinear equations, numerical differentiation and integration, numerical solution of initial value problems and boundary value problems, and curve fitting.

Textbook:  
Applied Numerical Methods with MATLAB for Engineers and Scientists, 2nd edition, by Steven C. Chapra. Additional supplemental materials will be provided during lectures and via the course website.

Other References:  
Numerical Methods for Engineers by S.C. Chapra and R.P. Canale  
Essential MATLAB for Engineers and Scientists by B.D. Hahn and D.T. Valentine

Prerequisites:  
A basic understanding of the following is necessary for this course:  
• Linear algebra and matrix operations.  
• Calculus and differential operations.  
• Ordinary differential equations.  
• Computer programming.

Grading Criteria:  
Midterm..........................................................................................................................40%  
Final.................................................................................................................................40%  
Homework.......................................................................................................................15%  
Class Participation and Instructor’s Discretion............................................................10%

Academic Honesty:  
The complete policy statement on academic honesty is available at:  
http://www.editor.uci.edu/catalogue/appx/appx.2.htm  
There is also a link to this policy on the course website. You are strongly encouraged to read through this policy, which will be strictly enforced with a zero tolerance policy.  
In this class, student discussions regarding the lecture topics are allowed. However, anything submitted for credit must be the student’s individual work. The instructor does not tolerate ANY acts of academic dishonesty.
Exams: There will be a 90-minute midterm exam on February 9 starting at 9:30 am in the Engineering Computing Trailer (ECT) room 123, and a final take-home exam (report) during the finals week. The midterm exam will be close-book, but you will be allowed to use your lecture notes and the MATLAB M-files that will be posted throughout the quarter on the course website.

Homework: General discussions regarding the homework problems are allowed only before you start working out the solution on the computer paper. Direct collaboration, copying, or accessing any printed solution manuals are considered violations of academic honesty, and will be treated as such with a zero tolerance policy.

Homework solutions must be written out neatly so that they are easy to follow. The instructor reserves the right to assign a grade of zero to a homework that is difficult to follow. All steps in the solution must be included in the write-up for full credit to be received. All the computer commands used and M-files generated in MATLAB must also be submitted either as a printout or electronically via email. All disputes over grading of homework or exams must be referred to the instructor within 7 days after materials are returned. Homework that is submitted late will be docked 15% of the maximum points for each day the assignment is late.