

UNIVERSITY OF CENTRAL FLORIDA
Department of Mathematics

MAP 5385 Applied Numerical Mathematics Spring 2007

ENG3 0111 MW 7:30-8:45pm

Contact information

Instructor: Dr. Eleftherios Gkioulekas, Department of Mathematics
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Web: <http://www.math.ucf.edu/~lf/>
Office hours: MW 1:00pm-3:00pm; F 3:00pm-4:00pm
Office location: 201A MAP

Course information

Text: David Kincaid and Ward Cheney: “Numerical Analysis: Mathematics of Scientific Computing”
Course Goal: The main objective of this course is to introduce the student to the fundamental methods of applied numerical analysis. Emphasis will be given to numerical linear algebra, the numerical solution of ordinary differential equations and partial differential equations, and other selected topics.

Core Topics

Computer arithmetic and Numerical errors
Review of vector spaces and linear algebra
Numerical Linear Algebra
Numerical methods for Ordinary Differential Equations
Numerical methods for Partial Differential equations
Other selected topics

Policies

Homework: There will be four homework assignments and a final examination. The homework will contain both theoretical questions and questions that require the software implementation of algorithms on a computer. You may use Matlab, Gnu Octave, C, C++, or a Fortran dialect for the software side of the project. You should prefer Gnu Octave, because it is free software, or C, because C compilers tend to be better behaved than C++ compilers. Except for Fortran 77, there are no free compilers for the other dialects of Fortran. That said, use the language you prefer. Homeworks will essentially be short projects, some of which may or may not be open-ended questions, and should be submitted in the form of a typed scientific paper. If you use any other references during the preparation of your homework, you should make sure to cite them. It is recommended that you use \LaTeX for typesetting, but you will only be required to turn in a PDF file via e-mail. I will assign a letter grade to each assignment.

Final Exam: The final examination will be closed book and will emphasize your knowledge of the theoretical ideas involved.

Course Grade Algorithm: Your final grade will be 75% homework and 25% final exam. For the purpose of calculation, the letter grades that I assign to your homework will be converted as follows: A=100%; B=90%; C=80%; D=50%; F=0. The final numerical grade will be converted again to a letter grade as follows: A: 90%-100%, B: 80%-89%, C: 70%-79%, D: 50%-69%, F: 0%-49%.

Attendance: Attendance to the lectures is essential as I will allow myself the liberty to deviate from the textbook as I see fit. You are responsible to know what I cover during lecture.

Revisions: This syllabus may be revised. If it is revised, this will be announced in class, and on the web site, where the revised syllabus will be made available.

Academic integrity: Plagiarism and Cheating of any kind on an examination, quiz, or assignment will result at least in an “F” for that assignment (and may, depending on the severity of the case, lead to an “F” for the entire course) and may be subject to appropriate referral to the Office of Student Conduct for further action. See the UCF Golden Rule for further information. I will assume for this course that you will adhere to the academic creed of this University and will maintain the highest standards of academic integrity. In other words, don’t cheat by giving answers to others or taking them from anyone else. I will also adhere to the highest standards of academic integrity, so please do not ask me to change (or expect me to change) your grade illegitimately or to bend or break rules for one person that will not apply to everyone.

Disability Access Statement: The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations. No accommodations will be provided until the student has met with the professor to request accommodations. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.