Numerical Analysis I - Syllabus
MATH 4610/6610 CSC 4610/6610
CRN 80900/80908/80344/80363

SEMESTER / TIME: Fall 2009, MW 3:00 – 4:15, Classroom South 306
CREDIT HOURS: 3 semester hours
INSTRUCTOR: Dr. Robert Clewley
Office: College of Education Building, room 720
Phone: 404 413-6420
Email: rclewley@gsu.edu
Course website: http://www2.gsu.edu/~matrhc/math4610.html
also via uLearn (formerly WebCT): http://ulearn.gsu.edu

Additional office hours by appointment.


This course syllabus provides a general plan for the course; deviations may be necessary.

1. THE COURSE

   a. Course Description. Introductory concepts and calculus review, Python programming, the sources and propagation of errors, root finding for nonlinear equations, interpolation and approximation theory, numerical integration and differentiation.

   b. Prerequisites and administrative drop policy. Grade of C or higher in Math 2215 Multivariate Calculus or equivalent and the ability to program in a high-level language. During the first two weeks of the semester the Department of Mathematics and Statistics checks the computer records to determine whether or not each student has met the prerequisites for this course. If you do not have the prerequisites, please inform me and change to another course right away (you can do this online). If our computer search finds that you do not have the prerequisites, or if you do not attend class regularly during this period, you must drop this course or you will be dropped automatically.

2. METHOD OF EVALUATION.

   There will be a total of 100 points possible for this course. The points are distributed as follows:
   Two tests 2 * 15 30%
   Two quizzes 2 * 5 10%
   Two projects 2 * 15 30%
   Final exam 30 30%

   a. Tests (30%). Two one-hour closed book tests are scheduled, where you will be allowed one two-sided letter-sized page of notes. There will be additional questions intended only for graduate students in MATH/CSC 6610. Tests may not be made up, although exceptions may be made if you can provide adequate evidence of the emergency that causes you to be absent. Scheduling conflicts must be worked out with me in advance. Missed tests will result in a score of zero for that test.

   b. Quizzes (10%). There will be two quizzes, usually held at the end of a class. Their purpose is to keep you up-to-date in the course. Make-up quizzes will not be given, except when special conditions exist.

   c. Projects (30%). There will be two practical computer projects for which you will prepare a short report. Although you may work through some of the problems together, your report must be entirely your own work. Deadlines will be announced in class. Late projects will not be graded. Students are free to use Python, Matlab, Octave, or Maple for the projects. Further information is on the class web site.

   d. Final Exam (30%). The final exam will be in take-home format, and will be comprehensive. There will be additional questions intended only for graduate students in MATH/CSC 6610. You must work the problems entirely by yourself. The exam may not be made up, although exceptions may be made if you can provide adequate evidence of the emergency that causes you to be absent. Scheduling conflicts must be worked out with me in advance. Missing the exam will result in a score of zero.
Your total accumulated points will determine your final letter grade:

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<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B+</td>
<td>87-89</td>
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<tr>
<td>B</td>
<td>80-86</td>
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<td>C+</td>
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<td>D</td>
<td>60-69</td>
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<td>F</td>
<td>0-59</td>
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In case of a grade dispute I will require you to provide me with a written rationale for increasing your grade. Final grades will not be posted or given out over the phone or via email.

3. EXAM SCHEDULE. *These dates are approximate guides only.* Finalized dates will be announced in class. Tests: September 24, November 3. Final exam deadline: Friday, December 11, 11:59pm.

4. POLICIES.

a. Use of technology. You will be free to use any scientific calculator, graphing calculator, or CAS approved by me throughout the course without restriction, but you will be asked to provide full working for many questions in your tests and exams. Programming languages for project work will be restricted to Python, Matlab, Octave, or Maple, at the student’s discretion.

b. Studying. You must work on this course every week. The pace is hectic and if you procrastinate it will become much harder to catch up. You must come and speak to me immediately if you are struggling with the work.

c. Presentation. You should think of your submitted work as documenting your learning process rather than a polished end product. Although I am happy to see neatly crossed-out working on your work, I expect you to use clear English and well-organized mathematics. Do not be afraid to use full sentences if it makes your work clearer. If I cannot read your work or clearly interpret your meaning I will not be able to award you full credit.

d. Class Attendance. If you do not attend class during the first two weeks you will be administratively withdrawn. You cannot withdraw from the course simply by ceasing to attend class; you must formally withdraw. If you intend to withdraw, do so before midterm (October 15) to avoid a grade of “F” or “WF” (except for hardship withdrawal). Any student who withdraws prior to this date will be assigned a grade of “W” at the end of the semester. A grade of W will only be assigned to a withdrawing student if the student is passing at the time of withdrawal.

Occasionally you will be asked to informally present and discuss some of your work during class time. Please take this as an opportunity to improve your communication skills and to foster a spirit of teamwork.

e. Academic Honesty. During in-class quizzes, tests, and the final exam you will be instructed to do your own work, talk to nobody, and not to share calculators. Violations of these instructions constitute dishonesty and will be handled in accordance with the University’s policy on Academic Honesty (Section 409), which permits assigning grades of zero or dismissal from the course. In addition, the Dean of Students is notified of acts of academic dishonesty.

f. Please turn off all cell phones and other electronic communication devices (including internet access on laptops) and keep them off the desk. Text messaging, instant messaging, email, etc., during class is strictly prohibited and is grounds for dismissal. You may only use laptops and similar devices for taking class-related activity.

g. Student Evaluation of Course. Towards the end of the semester you will receive an email from the Office of the Registrar explaining the online procedure for submitting a course evaluation via GoSolar. It is of great value to future students, the university, and myself for you to participate in this evaluation, so please take it seriously.

h. Please advise me if you have a documented disability that needs to be accommodated.