Math 340 Numerical Analysis
Spring 2006
Syllabus

Instructor: Jeff Wright
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Office Hours: Tu 1:30 - 3:30, W 10:00 - 11:30, 1:15 - 2:45, and by appt
Class Meetings: Tu Th 10:45 - 12:05, Serra 170
Final Exam: Tuesday May 23, 2006 11:00 - 1:00

Textbook
(Required) Numerical Computing with Matlab by Cleve Moler. Available in the USD Bookstore or by

Prerequisites
Math 151 and CS 150.

Calculators and Software
This course is designed around the deep use of Matlab. Matlab is available on computers in Serra 185,
Serra 205, Maher 114 and Olin 122. I suggest you acquire a student copy of Matlab (about $100 at
the USD Bookstore) for installation on your own PC.

Other Supplies
A stapler is required. All material longer than one page that you hand in must be stapled together. I
will not accept loose bundles of unstapled papers.

Academic Integrity
Please be aware of the academic integrity policy of this University. Cheating and plagiarism are serious
offenses and will be treated seriously. Although I encourage you to study together, unless specifically
designated as a group assignment all work you hand in should be your own. Do not discuss any aspect
of any exam in this class with anyone at all, until all exams are returned. Do not discuss the final exam
with anyone at all, until next semester.

USD E-mail Account
I will be sending lots of email this semester to your USD email address. If you have a second email
address that you prefer to read, you should set your USD account to forward your email to that
address. To set your student email to forward, click here to log into the USD SENDMAIL server, then
enter your USD email user name and password, and EDIT MAIL FORWARDING LIST. If you need help
with any of this, contact the Computing Help Desk (260-2400)

Introduction
This is an introductory course in computational techniques for finding approximate solutions to difficult
mathematical problems. In addition to covering how the algorithms work, we will also want to understand and compute error bounds for the techniques. This information will also tell us how quickly the algorithms converge to an accurate solution. We will cover at most of the first eight chapters in the book, and I may introduce additional materials as well.

You are expected to know calculus for this course. Some knowledge of linear algebra may be needed as well, though in most cases, deficiencies in linear algebra can be accommodated through additional study.

Grading, Homework and Exams

**Two in-class exams**

will be worth a total of 40% of your final grade. These tests are (tentatively) scheduled for Friday, October 8 and Friday, November 12. Make-up tests will only be given in the event of a verifiable serious illness.

**Homework**

will count for 25% of your grade.

**A cumulative, mandatory final exam**

worth 35% of your grade will be given. The exam dates are noted on the first page of this syllabus.

**Grading Scale.**

A tentative grading scale is as follows:

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<thead>
<tr>
<th>Range</th>
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<th>Grade</th>
<th>Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>97%-100%</td>
<td>A+</td>
<td>93%-96%</td>
<td>A</td>
<td>90%-92%</td>
<td>A-</td>
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<tr>
<td>87%-89%</td>
<td>B+</td>
<td>83%-86%</td>
<td>B</td>
<td>80%-82%</td>
<td>B-</td>
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<tr>
<td>77%-79%</td>
<td>C+</td>
<td>73%-76%</td>
<td>C</td>
<td>70%-72%</td>
<td>C-</td>
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<tr>
<td>60%-69%</td>
<td>D</td>
<td>0%-59%</td>
<td>F</td>
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</table>

**Pass/Fail**

If you are taking this class Pass/Fail, you need to have the equivalent of a C- to pass.

**Incomplete**

A grade of incomplete will only be given if you are doing passing work and some sort of extraordinary circumstance unrelated to the course prevents you from completing all of the course requirements. You will not receive an incomplete merely because you fall behind in the course.

**Miscellany**

**Attendance is mandatory.**

If you miss class you are still responsible for all the material covered in class that day, and for handing in on time all work assigned that day. You are responsible for all the material in the assigned sections of the text. Some of this material may not be discussed in detail in class. There may also be some material discussed in class which is not in the text. You are responsible for this material too.

**Classroom decorum.**

Please remember that you are a professional, and this class is a professional commitment. Civility suggests that you not bring food or drinks into the classroom. It is distracting, inconsiderate of others and disturbs the flow of the class. The same goes for leaving the classroom early without obtaining my

permission before class starts. Take care of any pressing personal needs you may have before coming to class. Finally, please arrive to class on time so that we can get the most out of our limited time together. Entering late - and with great fanfare - is obnoxious.

**Practice, practice, practice.**
Mathematics is not a spectator sport. The only way to learn math is to do hard problems. Just as you cannot become a world-class gymnast by watching the Olympics on TV, you cannot expect to learn math by listening to others talk about it or reading other people's work. You should expect to spend lots of time on your homework for this class - at least six hours per week! Some of the problems I assign will be challenging, and you will probably not be able to solve every one. The goal is to think about and struggle with every problem. Once you get the solution to a problem, you should go back and practice it until you can do it easily without recourse to hints or notes. It does not help to practice with problems you can already do - you must pump neural iron on problems that are hard! It is through such struggles that you develop mathematical muscle.

**Show your work.**
On all homework, quizzes and exams you must show all your work on each problem. This includes explaining what you are doing at each step, in words, where appropriate. No credit will be given for answers with no work shown even if the answers are numerically correct. Partial credit will be given for work that is partially correct, even if the final answer is wrong. On the other hand, you will be penalized for incorrect or sloppy work, even if the final answer is correct.