MTHSC 861, Advanced Numerical Analysis I
MWF 9:05am-9:55am, Martin M-204
Syllabus available on Blackboard or the course web page
Course web page: http://www.math.clemson.edu/~lea/mthsc861.html

General Information
Instructor: Dr. Lea Jenkins
Office: Martin O-222
Office Hours: MTWF, 10:00am-11:00am, or by appointment
Contact information: lea@clemson.edu or 656-6907
Text:
Iterative Methods for Linear and Nonlinear Equations
Author: C.T. Kelley
Scientific Computing, Second Edition
Author: Michael T. Heath
Course prerequisites: MTHSC860 (or equivalent)

Grading
Final grades will be determined based on the following percentages:
Homework: 45%
In-Class Exams (2) 15% each
Final Project: 25%
Homework should be typed and late homework is not accepted. You may work on
homework assignments together; however, the final result must be typed independent
of other members of the class. Perfect grades on either homeworks or exams require
full and thorough explanation of your answers. All code used to generate solutions
must be included as part of the material that is submitted.

Covered Material (Tentative)
Eigenvalue Problems Heath, Chap. 4
Stationary Iterative Methods Kelley, Chap. 1
Conjugate Gradient Iteration Kelley, Chap. 2
GMRES Iteration Kelley, Chap. 3
Nonlinear Equations Heath, Chap. 5
Fixed-Point Iterations Kelley, Chap. 4
Newton’s Method Kelley, Chap. 5
Inexact Newton’s Method Kelley, Chap. 6
Broyden’s Method Kelley, Chap. 7
Global Convergence Kelley, Chap. 8

Additional References
2. Iterative Methods for Solving Linear Systems, Anne Greenbaum
3. Numerical Linear Algebra, Lloyd N. Trefethen and David Bau, III
**Attendance Requirements**

As graduate students, you are expected to attend class. If I must give you a number, I expect you to miss 0 classes. You are required to attend class on test days and the final exam. If the instructor or a guest lecturer is late, you are expected to wait 15 minutes before leaving. Use of cell phones and pagers is prohibited during class meeting time.

**Academic Integrity**

The following is the official statement on academic integrity at Clemson University.

“As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a “high seminary of learning”. Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

If, in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member shall make a formal written charge of academic dishonesty, including a description of the misconduct, to the Associate Dean of Undergraduate Services. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.

**Grading Scales**

Grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 and above</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>below 60</td>
<td>F</td>
</tr>
</tbody>
</table>

**URL for MATLAB Primer**

A nice MATLAB reference written by Kermit Sigmon can be found at http://www.math.clemson.edu/comp_doc/MATLABPrimer.pdf