Math 5510: Introduction to Numerical Analysis I

Fall 2015

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Lectures: MWF 10:10-11:00 AM in MSB 303.

Office hours: Friday 11:00 AM - 12:00 PM or by appointment. Usually, I will be available after 12:00 PM on Fridays as well.

Class web page: `http://www.math.uconn.edu/~connors/math5510f15/index.html`
Note: the class web page will serve as a means to disseminate homework and other information during the semester.

Textbook: *Introduction to Numerical Analysis* by J. Stoer and R. Bulirsch.

This course essentially covers Chapters 1-4 in the text with some supplementary material.
Topics:

- Round-off and error analysis - Sect. 1.1-1.3

- Topics in interpolation; various methods for interpolation, error analysis - Ch. 2

- Numerical integration; Newton-Cotes method, Peano's error representation, Gaussian integration - Sect. 3.1, 3.2, 3.6

- Systems of linear equations; matrix decompositions/factorizations, solution methods, error analysis, data fitting - Sect. 4.1-4.8

Grading:

- Homework: 60%

- 2 midterm exams: 10% each

- Final exam: 20%

Exams are closed-book. Homework will include both theoretical and computational components. The lowest homework score will be dropped. Late homework will be penalized at a rate of 10% PER WEEK that it is late. The classical grade scale will be used for the course grade; $A : 90 - 100\%$, $B : 80 - 89\%$, etc.

Computing:
We will use MATLAB for computations. It is available in the graduate computer lab, on office computers, or the student version may be purchased at mathworks.com or through the UConn Co-op. Plenty of help getting started is available online, but if you are new to MATLAB it should suffice to go to
`www.mathworks.com/help/matlab/getting-started-with-matlab.html` and read through the tutorials.