Math 5510: Introduction to Numerical Analysis I

Fall 2018

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Lectures: T,Th 2:00-3:15 PM in MONT 113.

Office hours: T, Th 1:00 - 2:00 PM, or by appointment, formally, but I will be available other times as well. Tuesdays and Thursdays, sometimes Fridays, but usually not Monday or Wednesday.

Class web page:
http://www.math.uconn.edu/~connors/math5510f18/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 at software.uconn.edu for download. You can also look into UConn's AnyWare and SkyBox online software platforms. Plenty of help getting started is available online, but if you are new to MATLAB it should suffice to go to http://www.mathworks.com/help/matlab/getting-started-with-matlab.html and read through the tutorials.