

Math 5511: Introduction to Numerical Analysis II

Spring 2019

Instructor: Jeffrey Connors

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Lectures: T/Th 11:00 AM -12:15 PM in MONT 101.

Office hours: T/Th 2:00-3:00 PM, but I have an open-door policy. We can always work out a time if you need to meet.

Class web page: <http://www.math.uconn.edu/~connors/math5511s19/index.html>

Note: the class web page will serve as a means to disseminate homework or other information during the semester.

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

This course essentially covers Chapters 5-7 in the text with possibly some additional topics at the end of the course (see topics), if time/weather permit.

Topics:

- Iterative methods to find roots or minimum points
- Matrix reductions
- Computing eigenvectors and eigenvalues (and singular values)
- Numerical methods for ODEs
- Numerical methods for boundary value problems
- Difference methods
- Variational methods
- Finite volume methods (time permitting)
- Shock capturing (time permitting)

Grading:

- Homework: 25% for each of three assignments.
- Final project and presentation (20 minutes): 25%

Computing:

We will use MATLAB for computations. Students should already have some experience with it from previous courses.