SYLLABUS

MATH3511 – NUMERICAL ANALYSIS II

SPRING SEMESTER 2018

http://www.phys.uconn.edu/~rozman/Courses/m3511_18s/

Last modified: March 7, 2018

Course description: The overall goal of numerical analysis is the design and analysis of techniques to give approximate but accurate solutions to hard problems. MATH 3511 *Numerical Analysis II* teaches this analysis associated with iterative methods of solution of linear equations and eigenvalue problems, zeros of non-linear equations, approximation theory, boundary value problem for ordinary differential equations, and numerical solutions of partial differential equations, with attention to generation and propagation of numerical errors and to computational speed.

Lectures: TuTh 5:00 – 6:15, Monteith 421

Course webpage: http://www.phys.uconn.edu/~rozman/Courses/m3511_18s/

Instructor: Michael Rozman

email: michael.rozman@uconn.edu
office hours: Mo 6:30 PM – 7:30 PM in OAK104,
Tu 6:15 PM – 7:15 PM in MONT421,
We 6:30 PM – 7:30 PM in OAK104,
by appointments

Textbook:

R. L. Burden and J. D. Faires, *Numerical Analysis*, Cengage Learning, Wiley, Editions 8–10 (i.e. any edition published after 2000)

Exams: Two closed book midterm exams and a closed book *cumulative* final exam

Grading scheme: The course grade will be calculated using the following scheme.

Homework projects	35%
2 Midterms	35%
Final exam	30%

The rounding to integers is done using the default rounding mode specified in the IEEE754 standard for floating point arithmetic.

Class schedule: this is a *preliminary* schedule.

Week(s)	Subject
1-3	Iterative techniques in matrix algebra
4-7	Approximating eigenvalues
6	**Midterm I** - Thu, Feb 22
8	Approximation theory
9	**Spring recess**
10	Nonlinear systems of equations
11-12	Boundary value problems for ordinary differential equations
13	**Midterm II** - Thu, Apr 5
13-15	Numerical solutions to partial differential equations

Communications: talking in person is the preferred method to contact the instructor; email is the next option.

- please include the tag "[math3511]" (without quotes, no spaces) in the subject of your email, e.g. "[math3511] midterm II review"
- please no emails with attachments unless requested by the instructor. Use *UConn File DropBox* https://dropbox.uconn.edu/dropbox or *UConn FileLocker* http://web2.uconn.edu/filelocker/ for submitting large files

Homework: Homework assignments submitted on time may be returned (at the discretion of the instructor) for corrections and better grade after the initial grading. No such option is available for late assignments.

Homework assignments are not accepted after the solutions had been discussed in class and/or had been posted online. Individual emergencies can be accommodated by extra credit assignments.

You are welcome to discuss the homework's problems with others in order to better understand them but the work you turn in must be your own. In particular, you must run your own calculations (where applicable) and communicate and explain the results in your own words.

Assignments that are hard to understand are also hard to grade correctly, therefore: (a) use words and pictures to supplement your equations; (b) your presentation must progress linearly down the page.

Requirements for written assignments:

- Use letter-size paper. Use only one side of each sheet.
- $\boxed{\text{Box}}$ your final answer(s).
- Staple your notes together, (i.e. no paper clips, torn or folded corners) with the assignment cover page (the cove page is used for grading and communicating the instructor's feedback)

Highly recommended: make copies of homework assignments for your own files.

Computer programming:

Homework projects require writing simple computer programs. This class is taught using Matlab. However you may use any programming language you like if the instructor can read and run your code – clarify in advance whether the programming language of your choice is acceptable.