

MA(CSC) 780 Numerical Analysis II, Spring 2011

Instructor: John Harlim
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Office Hours: W, 4-5PM

Time and Place: MWF 9.10-10.00, SAS 2229

Midterm exam: March 2

Final exam: May 11, 8-11AM.

Prerequisites: Numerical Analysis I (MA580) and good programming skills (MATLAB).

Topics: Interpolation and approximation theory, fast Fourier transform, numerical differentiation and Integration, numerical solutions of ordinary differential equations.

Grades: Homework (50%), midterm exam (20%), final (30%).

At the end of the semester, your total will be translated into a grade on the usual 90% for A, 80% for B, etc. I may consider the cutoffs for some letter grades if one or more tests turn out to be more difficult than I anticipated. Under no circumstances will any grade $\leq 50\%$ be other than F.

Homework: Homework will be assigned 2 weeks before it is due and **late submissions will not be accepted**. I will post the tex and pdf of the homework at:

<http://www.math.ncsu.edu/jharlim/teaching.htm>

Homework **must be in typeset** and I recommend you to use \LaTeX since it's not fun to type equations with MS words. You may consult [6, 7] for good introduction to \LaTeX . I encouraged you to **collaborate on the homework** and turn in assignments jointly (**no more than 2 people per team**) putting each participant's name on the paper. It is your responsibility to make sure that you understand all parts of the homework done by your team. If you don't I'll find out on the test!

Computing: It is your responsibility to become familiar with the NCSU computing environment. I encourage you to do your computing in MATLAB since it is the most convenient relative to Fortran and C. You may consult [1] for a good introduction to MATLAB.

Exams: All exams are done individually. It is my understanding that your signature on a test means that you neither have nor received unauthorized aid. You are responsible for understanding and following the university policy on academic integrity:

http://www.ncsu.edu/provost/academic_policies/integrity/reg.htm

Missed Exams: If you miss a test without either a certified medical excuse or prior to instructor approval, there is no makeup test. Tests missed with certified medical excuses or prior to instructor approval will be dealt with individually.

Students with Dissabilities: Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must either register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. http://www.ncsu.edu/provost/offices/affirm_action/dss/

Recommended Texts: You are not required to buy any of the listed texts below but [2, 3, 4, 5] are good resources.

References

- [1] K. Sigmon. Matlab primer, third edition. 1993.
- [2] A. Quarteroni, R. Sacco, and F. Saleri. Numerical Mathematics. Texts in Applied Mathematics 37, 2nd edition, Springer, 2000.
- [3] W. Gautschi. Numerical Analysis: An Introduction, Birkhauser, 1997.
- [4] J. Stoer. and R. Bulirsch Introduction to Numerical Analysis, Texts in Applied Mathematics 12, 2nd edition, Springer-Verlag, 1991.
- [5] V. Ryaben'kii. and S. Tsynkov A Theoretical Introduction to Numerical Analysis, Chapman & Hall/CRC, 2007.
- [6] J. Warbrick. Essential L^AT_EX. 2002.
- [7] T. Oetiker. The Not So Short Introduction to L^AT_EX 2e. 2004.