

MTH361-01 Syllabus

Numerical Analysis 1

Fall 2012

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Office Hours: TR 11:00 AM – 01:00 PM or by appointment.

Class Meetings: TR 8:00–9:15 AM. Larts 218.

Textbook: It is indeed hard to choose a single textbook for this course. My class notes will be based on the following sources:

1. Numerical Computing with MATLAB by Cleve Moler.
2. Approximation Theory and Approximation Practice by Nick Trefethen.
3. Numerical Methods in Scientific Computing by Germund Dahlquist and Åke Björck.
4. Spectral Methods in MATLAB by Nick Trefethen.
5. Some SIAM papers.
6. Learning MATLAB by Toby Driscoll.

Note that (1) is currently available online though this may change in the future. (2)-(5) are usually used in graduate level courses. However, I will try to extract “practical guide” part out of (2)-(5) for my class notes. In addition, internet is just clicks away and UMassD library is just hundred steps from our classroom. In short, we have enough resources if needed.

Software: We will mostly use MATLAB. I will be providing MATLAB tutorial in class. In some cases, we will also use Mathematica and Maple. All of those software are available in room 218. Students may also use Octave or FreeMat as an alternative to MATLAB.

Course Description and Objectives: This is the first undergraduate level numerical analysis course offered by the Department of Mathematics at UMass Dartmouth. We will be covering topics such as interpolation, root finding methods, numerical differentiation, and numerical integration. After taking this course, students should be familiar with both numerical experiments and analysis behind function approximations.

Grades:

Your grades will be based on 5 take home projects. Each project will contain questions about numerical experiments and mathematical analysis. Solutions and codes must be uploaded to [mycourses](#) before deadlines.

Grade-O-meter:

Project 1: 20%	A 96-100%	C 72-75%
Project 2: 20%	A- 92-95%	C- 68-71%
Project 3: 20%	B+ 88-91%	D+ 64-67%
Project 4: 20%	B 84-87%	D 60-63%
Project 5: 20%	B- 80-83%	D- 56-59%
Total: 100%	C+ 76-79%	F 0-55%

What's Valued: The things most valued in this class are:

- Engagement. This is evidenced by participating in class, asking questions, by reading ahead, by bringing questions to class.
- Honesty. This is a basic scientific attribute. You are encouraged to work together as a group and to discuss homework problems with other students. However, all codes and homework solutions must be written and submitted individually.
- Take Pride in your Work. Project solutions must be carefully written and MATLAB codes must be neatly organized. Think about people who will read your codes. Putting extra comments in the codes will be helpful. Figures must be complete with labels, titles, etc.

Academic Dishonesty:

Please consult UMass Dartmouth Student Academic Integrity Policy:

<http://www.umassd.edu/studenthandbook/academicregs/ethicalstandards.cfm>

Attendance and Focus of Attention:

Attendance is mandatory, as is being on-task and participating in class activities. Three (3) missed classes without explanation may result in a grade of F without further discussion.