

Mathematical Sciences, University of Delaware
Math 353: Engineering Mathematics III, Fall 2009

Section 13: M, W, F 8:00-8:50 AM, EWG 207

Section 11: M, W, F 10:10-11:0 AM, EWG 207

Instructor: Constantin Bacuta, 532 Ewing Hall, 831-1877, E-mail: bacuta@math.udel.edu

Course Web Page: <http://www.math.udel.edu/bacuta/M353/f09index.html>
and: <https://sakai.udel.edu/portal>

Office hours: M 9:00-10:00 AM, W 2:00-3:00 PM.

Textbook: *Numerical Analysis*, Timothy Sauer.

Course Description: Numerical Methods in engineering, linear and non-linear algebraic equations, numerical solution of ordinary differential equations, Runge-Kutta methods, boundary value problems, finite differences, applications to engineering problems with programming.

Homework will be assigned and will be collected regularly. Late problem sets will not be accepted unless prior permission is granted. No homework assignments are accepted after the graded assignments have been returned. Homework will include programming assignments.

Exams: No make-up tests will be given without an official university excuse. There will be two in-class midterm exams (Friday, October 9 and Wednesday, November 18) and a **comprehensive** final exam scheduled as follows:

Sections 11: Monday, December 14, 2009, 10:30 AM -12:30 PM

Section 13: Friday, December 18, 10:30 AM -12:30 PM

Quizzes: The quiz questions will cover topics from the current reading assignment and the previous lecture.

Project: One project will be assigned during the semester and it could include programming with MATLAB. The project is to be submitted individually.

Final grade: Midterm exams = 40%, Final exam =25%, Homework, Project and Quizzes=35%.
 $A > 94\%$, $A^- \geq 90\%$, $B^- \geq 80\%$, $C^- \geq 70\%$, $D^- \geq 60\%$, $F < 60\%$.

Course Goals: 1) Learn numerical methods, why they work and their limitations. 2) Understand and control the truncation error and the computer error in solving various problems numerically. 3) Write basic MATLAB programs and use MATLAB subroutine libraries. 4) Identify the right numerical technique to solve concrete engineering problems.

Attendance Policy:

I encourage you to attend every class. Attendance and active participation in class will be taken into consideration. College attendance policy as outlined in the Undergraduate Catalog “ <http://www.udel.edu/provost/fachb/III-1-1-attendance.html>”, will be followed.

Academic Integrity Statement:

All University of Delaware policies regarding ethics and honorable behavior apply to this course. Cheating receives a failing grade.

<http://www.udel.edu/stuguide/08-09/code.html#honesty>

Accessibility for Students with Disabilities:

If you are a student with a disability and wish to request accommodations, please contact 1) the ADA Office located at 413 Academy Street, in Room 165 in the Office of Human Resources, (302) 831-4563, or 2) the Academic Enrichment Center located at 148 South College Ave., (302) 831-2805. Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests for accommodations should be made as early as possible.

Material to be covered will be part of the following book sections :

1. Chapter 0: Sections 0.2-0.4
2. Chapter 1: Sections 1.1, 1.2, 1.4, 1.5
3. Chapter 2: Sections 2.1-2.5
4. Chapter 3: Sections 3.1-3.4
5. Chapter 4: Section 4.1
6. Chapter 5: Sections: 5.1, 5.2 and 5.5
7. Chapter 6: Sections 6.1-6.4
8. Chapter 7: Sections 7.1-7.2
9. Chapter 8: Sections 8.3, 8.1 (if time)

Note: This syllabus is subject to change.