M353 Syllabus (S. Zhang)
Last update: February 8, 2016

1. ENGINEERING MATHEMATICS III
(Numerical Mathematics)
MATH353010, 1:25PM - 2:15PM, MW SMI209; F EWG207

2. (a) Instructor: Zhang, Shangyou, Ewing 310, 831-0625, szhang@udel.edu
(b) Office hours: MT 9:00-11:00; W 11:00-12:00 or by appointment
(c) Teaching Assistant: Qiu, Tianyu
(d) Textbook: Applied Numerical Methods with MATLAB for Engineers and Scientists, 3rd Edition, by Steven Chapra
(e) Additional course materials:
   http://www.math.udel.edu/~szhang/teach/353

3. Coverage and Exam.
   (a) Chapter 2 MATLAB Fundamentals (some)
   (b) Chapter 3 Programming with MATLAB (some)
   (c) Exam 1, Mon, 3/21/2016:
      4.1-4.4: Errors/Roundoff/Truncation/Total.
      5.2-5.5: Roots: Bracketing and bisection.
      6.1-6.4: Roots: fixed point and Newton iteration
      9.1-9.3: Gauss Elimination
      10.1-10.3: LU decomposition
   (d) Exam 2, Mon, 5/2/2016:
      12.1-12.2 Gauss-Seidel, nonlinear systems
      17.2-17.3 Newton, Lagrange interpolation
      19.2-19.5: Numerical integration
      20.2-20.3 Romberg, Gauss integration
      21.2-21.4 Numerical differentiation
   (e) Final Exam: All above sections and
      22.2-22.5 Euler, Runge-Kutta methods
      23.1-23.3 Adaptive methods and stiff systems
      24.2-24.3 Shooting method, finite difference method
      Extra: Laplace equation, finite difference.

4. Workload and grade distribution.
   (a) final exam(1): 200 points.
   (b) hourly exams(2): 200 points.
   (c) homework assignments(10): 140 points.
   (d) computer projects(3): 45 points
   (e) quizzes(5): 20 points.
   (f) online-computer exercises(15): 45 points.
   (g) attendance checks(10): 30 points.
   (h) bonus points ($\leq 20$): finding major errors in hand-outs/webpages and lectures.
   (i) Guaranteed a course grade of A-, B-, C-, and D- or better if a student’s percentile is 90, 80, 70, and 60 or above, respectively, unless the total point of one category is below 50%.

5. Policy.
   (a) We will give more homework, computer exercises and attendance checks, etc. than the counted ones above. We drop at least one lowest of each, other than exams. No makeup or late work is acceptable, except the final exam. The final exam is mandatory.
   (b) For university mandatory, the average of a category will be used for a missing work in the category, provided 50.1% of the work in the category is accomplished.
   (c) All homework assignments are due at the beginning of class on the due date. All problems and solutions, in all assignments and exams, must be written in the order assigned.
   (d) The work one turns in must be completely the person’s own. Academic integrity is strictly enforced:
      http://www.udel.edu/judicialaffairs/ai.html

6. Communication.
   (a) Check class website if you miss some hand-outs/information.
   (b) Email szhang@udel.edu.
   (c) You will receive your grades, letter grade, and class ranking regularly by email.