

**Math 3043.001 (old 253) Numerical Analysis I Section 001 THREE CREDIT COURSE**

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**Office Hours:** **Monday, 9 – 11; Tuesday & Thursday 8:30-10:30, 1-2, others by arrangement**

**PREREQUISITES:** Three terms of calculus, linear algebra, and knowledge of a high level programming language.

**Lecture:** **Tues & Thurs 3:30-4:50 (Barton Hall Classrooms 401)**

**Text:** *A Friendly Introduction to Numerical Analysis*, by B. Bradie, published by Pearson/Prentice Hall, 2006 (ISBN 0-13-013054-0)

**Topics covered include:**

Computer arithmetic, pitfalls of computation, iterative methods for the solution of a single nonlinear equation, polynomial interpolation, cubic spline interpolation, elementary least squares, numerical differentiation, numerical integration, solution of linear systems using pivoting and matrix factorizations. (The portions of the text covering this material are in Chapters: 1-8.)

<p><b>Grading:</b> Homework/quizzes/participation ..... 25% Exams (take home &amp; in-class) .....75% Two exams and a <b>final (12/17, 1-3PM)</b> .</p>
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<p><b>GRADING GUIDE</b></p>
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<p><b>A(100-92), A- (91-90)</b> <b>B+(89-88), B(87-82), B-(81-80)</b> <b>C+(79-78), C(77-72), C-(71-70)</b> <b>D+(69-68), D(67-62), D-(61-60)</b> <b>F – below 60%</b></p>
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**Course Goals:**

- Provide a sound working base in numerical methods.
- Increase ability to apply proper mathematical tools to specific situations.
- **Introduce computing technology using MATLAB and apply it to problem solving.**
- Increase ability to work independently and formulate problem solving approaches.
- Provide a set of experiences that can be utilized in other courses and beyond the classroom.

**Policies:** **Late work is unacceptable. No make-ups. No cell phones, No texting, No iPods/MP3 players, No ear buds/head phones, ETC. in class.**

**Read your book and any posted notes.** Class discussions are welcome.

**Computational Devices:** You will need a scientific calculator & **we will have assignments that will use MATLAB as the software platform.** In this course we will use the program MATLAB which is available at various places on campus. **You are expected to become proficient in using MATLAB for certain types of computations.** MATLAB is available at the Tech Center & Math Resource Center.

**Homework:** **"Naked numbers are not acceptable."** Solutions must include a short write-up describing the problem, your solution technique, and procedural details. To include a computer printout use the cut & paste method for placement of materials in your work. All things must be clearly labeled.

**Groups:** It is helpful to have a small group to study with. It is permissible to discuss problems but not to submit work which you did not develop. On exercises that are collected or take home test questions, individual work is required.

**"Why pretend that the life they are preparing for is easy? It is not and never will be."**  
That is, this is a hard course. You must work at it.

<p><b>Software:</b> The university <b>cannot</b> give you a copy of the MATLAB software. A student version of MATLAB (which is fully functional) is available for purchase at <a href="http://www.mathworks.com/academia/student_version/">http://www.mathworks.com/academia/student_version/</a> (this is optional)</p>
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Any student with special needs relevant to disabilities should see me privately. (Contact the Disabilities Resource & Services Office in 100 Ritter Annex, 215-204-1280.)

To withdraw a student must obtain an adviser's signature.

**Last day to drop a course: Monday, September 14**

**Last Day to withdraw: Monday, November 2**

No withdrawals after the 9<sup>th</sup> week of class. A student may withdraw from no more than 5 courses (taken after 9/1/2003) during their undergraduate career. A student may NOT withdraw from the same course more than once.

Beginning in the fall of 2003, the calculation of grades for a repeated course is: all grades for the repeated course except the lowest will be averaged together and used for the GPA calculation.

**Final Exams are Monday, December 14-Saturday, December 19**

### **TEMPLE E-MAIL:**

**ALL students are required to obtain a Temple e-mail address.**

**BY September 4<sup>th</sup> you must have sent me an e-mail message from your Temple account with your NAME & indicating that you are in my Math 3043.001 class.**

**Send to: dhill001@temple.edu**