

Math 371: Intro. to Numerical Algorithms – Fall 2009

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Office Hours: see website

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Course Web Page: <http://www.math.utk.edu/~heather/371Math.html>

Recommended Texts: “Numerical Computing with MATLAB” by Cleve B. Moler
“(Schaum’s Outlines) Numerical Analysis” by Francis Scheid

Lectures: TR 12:40-1:55, PER 108

Lab: F 2:30-4:25, HSS 202

Midterms: (TENTATIVE) September 22 (Tues) and October 27 (Tues)

Final: Dec 8 (Tues) 12:30pm.

Grade: 20% for homework quizzes, 20 % computer labs,
20% for each midterm, 20% for the final.

Course Information

In this course you will be introduced to various numerical algorithms and their implementation in MATLAB. Essentially, we will be studying how to computationally approximate solutions to various types of problems that deal with continuous quantities (time, distance, velocity, pressure, etc.) using only basic arithmetic operations.

Please let me know if you feel that you may not have an adequate background for success in this course, or if you have not met the course prerequisites with at least a 'C' grade. I will assume that you are very comfortable with integral and differential Calculus, matrix algebra, and have some knowledge of ordinary differential equations.

Expectations Summary

1. Read sections that we will be covering before coming to class.
2. Active engagement during class - I **expect** you to ask questions during class, and that you are actively thinking about what is being presented. This course requires you to understand, not merely memorize, so please keep this in mind as you study, participate in class, and do your homework.

3. We will not accept late computer lab assignments or give makeup homework quizzes. The lowest two scores will be dropped to account for possible illness, etc. Exams will be allowed to be made-up only in the event of a **documented** emergency.

4. Check your email and the website frequently. I will be using email to send out announcements about the course.

Course Structure and Reading Quizzes

The tentative day-by-day course structure is on-line at

http://www.math.utk.edu/~heather/371Fall109_Calendar.pdf,

and will be updated regularly (it's better to check this regularly on-line than print it out – it is likely to change fairly often). Here you can see what sections will be covered in lecture each day and when the exams will be held.

I will expect you to read over each section **before** coming to class. There will be several random **reading quizzes** held during the semester (up to 10). These quizzes will count as extra credit toward the final exam score, and will be worth one point each.

Homework and Lab work

Homeworks will be posted on the course homework page at

<http://www.math.utk.edu/~heather/371Homework.html>

and WILL NOT be announced in class. Next to each assignment is the date that material will be quizzed over.

Thorough explanations, with all work shown and correct use of notation, are expected in your solutions. Complete sentences and good grammar are also expected! Exposition is important in mathematics too. Most of all, make sure that you check yourself for complete, logical arguments (look for gaps in reasoning, missing justifications, etc).

Working in groups on homework sets can certainly be beneficial, and I encourage you to form study groups, however it is very important to do your final homework write-ups on your own and in your own words. Consider this the real test **for yourself** of whether or not you understand.

Lab assignments will also be posted on the course homework page and will not be announced in class. You will have the opportunity in lab session each Friday to work on these assignments and ask questions of the class TA, Chuan Li. We will be working exclusively in MATLAB for this course. Mr. Li and myself are available to help you learn both MATLAB and numerical analysis. If your personal computer is powerful enough to run MATLAB, you can download it for free through the university. It will also be available to you through the lab in HSS.

It is very important that you understand that the lab assignments that you turn in are to be your own work. No portion of your assignment is allowed to be taken from another student's work. You can talk to other students to verify that your output is correct or to get help with debugging, however the code that you turn in should be written by you and you alone. Anything else will NOT be tolerated by myself and Mr. Li. If you are struggling in this component of the course, please get help from one of us during office hours or lab so that you can have the one-on-one attention that you need.

Doing the homework and lab work is the most important part of the learning process and I will assume that you will work hard on it. **The lowest two homework quiz scores and lab scores will be dropped.** The reason that I will drop the two lowest scores is exactly to account for students needing to miss a due date for reasons of sickness, family emergency, etc. If you end up in a situation where a single illness or issue is going to cause you to miss turning in more than 2 assignments, contact me.

It is your responsibility to keep all your graded homework and midterms. It is very important to have them in case there are any problems with your grade.

Definitely **come to my office hours** if you are having difficulties with the course – this is what they are for. Please try to come during my *scheduled* office hours, but feel free to make an appointment if that would be impossible. You can also email me with questions, but if they are last minute realize that I may not read it in time to respond.

E-Mails

You will have to check your e-mail at least three days a week, preferably daily. I will use e-mail (given to me by the registrar's office) to make announcements. I will assume that any message that I send via e-mail will be read in two days or less, and it will be considered an *official* communication.

Due to privacy issues, I cannot send grades via e-mail, unless you sign a document saying that you are aware that e-mails are not secure and not necessarily private. (In fact, because of the open records laws in Tennessee, it really is not private.) If you want to sign such a document, please let me know. Grades for midterms will generally be posted on the course blackboard site, however.

Feedback

I have an *On-line Feedback Form* at

<http://www.math.utk.edu/~heather/php/feedback.html>

where you can anonymously send me your comments and suggestions. I will consider your comments and try to do whatever I can to resolve possible problems before it is too late. So, please, feel free to use it whenever you have any constructive comments or suggestions. (In fact, I would greatly appreciate it.)

Legal Issues

Conduct. All students should be familiar and maintain their “Academic Integrity”: from *Hill-topics 2007/2008* (<http://web.utk.edu/~homepage/hilltopics/HILLTOPICS2007-08.pdf>) pg. 40:

Academic Integrity

The responsibility for learning is an individual matter. Study, preparation and presentation should involve at all times the student's own work, unless it has been clearly specified that work is to be a team effort. Academic honesty requires that all work presented be the student's own work, not only on tests, but in themes, papers, homework, and class presentation. There is a clear distinction between learning new ideas and presenting them as facts or as answers, and presenting them as ones own ideas.

You should also be familiar with the “Classroom Behavior Expectations” found at

<http://www.math.utk.edu/Undergraduate/undergrad/Expectations.pdf>.

Disabilities. Students with disabilities that need special accommodations should contact the “Office of Disability Services” (<http://ods.utk.edu/>) and bring me the appropriate letter/forms.

Sexual Harassment and Discrimination. For *Sexual Harassment* and *Discrimination* information, please visit the *Office of Equity and Diversity* at <http://oed.admin.utk.edu/> and check

http://oed.admin.utk.edu/docs/complaint_sex_harass.pdf (Sexual Harassment)

<http://oed.admin.utk.edu/docs/DiscrimCompProc.pdf> (Discrimination)