

## CS 314 Numerical Methods

3 Credits, Spring 2012

Mon, Wed, Fri 12:30 - 1:20 P.M. Hass G066

<http://www.cs.purdue.edu/homes/apothen/CS314.html>

**Prof. Alex Pothén:** Dept. of Computer Science; Room 2116 G, Lawson; 496-9376; apothen@purdue.edu

**Office Hours:** Mon 3-4 P.M., Wed 3-4 P.M., and by appointment.

Please restrict phone calls to Office Hours, except in “emergencies”.

Email is welcome at any time!

**Pre-requisite:** Introductory programming, Linear Algebra, Advanced Calculus.

**Text:** *Scientific Computing with Matlab and Octave*, Alfio Quarteroni, Fausto Saleri, and Paolo Gervasio, *Third Edition*. Springer, 2010.

If you would like a gentle introduction to Matlab, then get *Learning Matlab*, Tobin A. Driscoll, Society for Industrial and Applied Mathematics (SIAM), 2009. Otherwise, on-line documentation is available within Matlab, and at the Mathworks web site, [www.mathworks.com](http://www.mathworks.com).

**Topics:** Basic computational algorithms for solving problems that arise frequently in the physical, engineering, mathematical, econometric, and biological sciences. We will emphasize algorithms for solving problems and using library quality software implementations. We will plan to cover the first six chapters in the textbook.

**News:** Syllabus, announcements, assignments, answers to Homework, grades, etc. will be posted on Blackboard. You are responsible for checking this site frequently.

**Teaching Assistant:** “GV” Gandikota. Office B 116 J Lawson,

Email: [vgandiko@purdue.edu](mailto:vgandiko@purdue.edu) TA’s Office hours will be announced later.

### **Grading:**

You will be graded on quizzes, homework assignments, two exams during the semester, and a final exam. Homework and quizzes will constitute 40% of your grade, and the three exams for the remainder. The grading will be on a curve, except that a score in the course of 90% or better will guarantee an A, 80% or better but less than 90% will be a B, and so on.

- **Homework:** There will be 6 assignments, with two weeks allocated for each one. Assignments will be due **before class begins**. Assignments will include “paper and pencil” problems, computational experiments involving

Matlab functions and programs, and programs to be written using the Matlab programming language. Partial credit will be given for partially working programs. Late homework (without valid documented excuse) will be penalized 10% for each day or fraction of a day it is late. To pass the course, your homework average needs to be 50% or better, **irrespective of your exam grades.**

- **Quizzes:** There will be five quizzes in total. These will be on alternate Fridays, and the HWs being handed out on the other Fridays.
- **Exams:** There will be two exams scheduled during the semester, one in early March, and the other in early April, and a final exam. If you have to miss an exam due to illness or emergency, it is your responsibility to contact me before the exam to receive permission to take a make-up exam. You will need written documentation of the emergency or illness (e.g., a note from your physician stating that you were incapacitated due to illness).

**Regrades:** If you think a mistake was made in grading your work, please submit for regrading within two weeks of the date on which the work was returned to you. After that, the grade will be considered final. Keep all of your work in case there are questions about the recording of your grades.

**Academic Integrity:** I will follow the course policies listed by Prof. Gene Spaford at the URL

<http://cerias.purdue.edu/~spaf/cpolicy.html>

It is your responsibility to familiarize yourself with the policy described there, and to ask questions if you are not clear on whether something is permissible or not. All work that you submit in this course must be your own. You may discuss lectures and problems (other than those on the Homework assignments) with other students, **but you may not discuss Homework problems with others.** If you need help with the Homework, please contact the Teaching Assistant or me for clarification. You may not consult any one else's written work, program drafts, computer files, etc. You are free to use reference material to help you with assignments, but you must cite any reference you use. Such citation will not lower your Homework grade.

**Disability:** If you need academic accommodations, please provide a letter of accommodation from the Office of Disability Support Services within the first two weeks of the semester.