

Carnegie Mellon University
Introduction to Mathematical Software (Math 21-126)
Spring 2005

Instructor Information

Ashwin Vaidya
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www.math.cmu.edu/~avaidya (Please go to the website for a link to the course page. You will find a copy of the syllabus through this site and I will also occasionally place materials and useful links here).

Class Schedule

Lectures : Thursday, 10:30-11:20, 11:30-12:20, 12:30-1:20 at the Hunt Far Cluster

Text Book

There is no prescribed text for this course. The course will be completely self-contained.

Course Outline

This course is designed with students of science and engineering in mind, in their freshmen or sophomore years. The objective of this course is to introduce the students to some softwares, such as Excel, Maple, Matlab and LaTeX which should be extremely useful in their future courses. The class will be conducted in a lecture/lab format where there will be minimal lecturing and students will do most of the learning by working on exercises. We will use these softwares to discuss mathematical topics such as statistical distributions, curve fitting, derivatives and integration, matrix theory and elementary differential equations.

Office Hours

Instructor: M, F 1:00-2:00 pm or by appointment

TA's will also have additional office hours, which will be announced in class upon finalization.

Attendance Policy

Students are expected to attend class regularly and are responsible for missed lecture notes and announcements. If you know you will be missing a class ahead of time, please inform me of your absence and make arrangements with your classmates to obtain notes for the missed lecture.

Classroom Expectations

Everyone involved must contribute to a positive learning environment in class. Please arrive on time, not leave early, keep cell phones turned off during lectures, not converse with fellow students during the lecture.

Grading

The final grade will be based only on homeworks and projects.

Homework

Homework will be assigned on a regular basis. You are expected to do the problems on your own. The completed assignments must be returned by email to the blackboard site. The TA will then retrieve the assignments from the blackboard site. Your individual grades should be available to you on blackboard. Any questions regarding homework scores will have to be taken up with the TA. Late homeworks will not be accepted.

Grade Assignment

Grade distribution is according to the following scheme:

90 – 100 : A

80 - 89 : B

70 - 79 : C

60 - 69 : D

Less than 60 : F

Schedule for the Course (Tentative)

01/13	Introduction to the course, introduction to Excel.
01/20	Excel and data analysis, normal distributions, solving equations (HW1).
01/27	Derivatives and Integrals using Excel (HW2).
02/03	Curve fitting and goodness of fit using Excel (HW3).
02/10	Problem session.
02/17	Introduction to Maple: basic operations, algebra and graphing.
02/24	3-D graphics, solving algebraic systems on Maple (HW4).
03/03	Calculus and matrix algebra on Maple.
03/17	Solving differential equations on Maple (HW5).
03/24	Simple Harmonic Motion using Maple.
03/31	Introduction to Matlab: basic operations and graphics. Final Project Assignment.
04/07	Curve fitting (HW6).
04/14	Numerical methods 1: simple integration methods.
04/21	Numerical methods 2: solving differential equations (HW7).
04/28	Problem session, LaTeX (if time permits).

Homework Due Dates

HW1:	01/27	HW4:	03/03	HW7:	04/30
HW2:	02/03	HW5:	03/31		
HW3:	02/10	HW6:	04/14	Project:	05/05