Mathematics of Engineering, ME 17
Spring 2008

Important Information

Lectures: Monday, Wednesday, Friday 2:00-2:50 PM, starting March 31
Buchanan Hall 1940

Course Webpage: `http://www.me.ucsb.edu/~moehlis/ME17`

Questions? Contact (email preferred):

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Tao Cai, Course TA
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Course Description

In this course, students will review and learn mathematical techniques necessary for success as an engineer, both in future coursework and on the job. Given the difficulty of solving most realistic engineering problems analytically, the emphasis will be on the understanding and use of computational algorithms. In the process, students will develop a strong working knowledge of Matlab, which is an integrated technical computing environment that combines numeric computation, advanced graphics and visualization, and a high-level programming language.

Textbook

- Applied Numerical Methods with MATLAB for Engineers and Scientists, 2nd edition by Steven C. Chapra

Books on 2-Hour Reserve in Library (Requested)

- Applied Numerical Analysis by C. F. Gerald and P. O. Wheatley, QA297.G47
- MATLAB Guide by D. J. Higham and N. J. Higham, QA297.H5217 2000
- Mastering MATLAB 6 by D. C. Hanselman, QA297.H293 2001
- Applied Numerical Methods for Engineers and Scientists by S. Rao, TA345.R36 2002
- Numerical Methods by J. D. Faires and R. Burden, QA297.F35 1998

Homework

There will be roughly one homework set per week, typically due on Friday in class.
Late homework will not be accepted.

Grading

25% Homework, 25% Midterm, 50% Final

Office Hours

Jeff's office hours (2350 Engr II): Tues 2:00-3:00, Wed 11:00-12:00
Ramya's office hours (2243 Engr II: Cad Lab): Tues 9:30-11:30, Thurs 10:00-11:30
Tao's office hours (2243 Engr II: Cad Lab): Thurs 1:00-4:30

Tentative Schedule

Mar 31: Introduction: Ch. 1
Apr 2: Basics of Probability
Apr 4: Calculus Review

Apr 7: Calculus Review
Apr 9: Calculus Review
Apr 11: Calculus Review

Apr 14: Matrices: Ch. 8, App A
Apr 16: Matrices: Ch. 8, App A
Apr 18: Matlab: Ch. 2-3+

Apr 21: Matlab: Ch. 2-3+
Apr 23: Matlab: Ch. 2-3+
Apr 25: Matlab: Ch. 2-3+

Apr 28: Errors, Numerical Differentiation: Ch. 4
Apr 30: Roots of Equations: Ch. 5-6
May 2: **MIDTERM**

May 5: Roots of Equations: Ch. 5-6
May 7: Roots of Equations: Ch. 5-6
May 9: Optimization: Ch. 7

May 12: Linear Equations and Matrices: Ch. 9-12
May 14: Linear Equations and Matrices: Ch. 9-12
May 16: Linear Equations and Matrices: Ch. 9-12

May 19: Curve Fitting: Ch. 13-14
May 21: Curve Fitting: Ch. 13-14
May 23: Interpolation and Splines: Ch. 15-16

May 26: **HOLIDAY**
May 28: Interpolation and Splines: Ch. 15-16
May 30: Numerical Integration: Ch. 17-18

Jun 2: Numerical Integration: Ch. 17-18
Jun 4: Numerical Integration: Ch. 17-18
Jun 6: review

Jun 9 (4:00PM - 7:00PM): **FINAL EXAM**