

Applied Mathematics – MAT661 – Spring 2006  
MWF: 10:20 – 11:10, AMB #207

Instructor: Dr. John Neuberger.  
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Office: AMB214.  
Hours: MTh 2:10 – 3:00, W 9:10 – 10:00, F 3:00 – 4:00, and by appointment.  
Text: None.

Grading Scheme

Homework, Projects, etc.:	25%
2 Exams:	30%
Comprehensive Final (Monday 5/8/06, 10:00 – 12:00):	25%
Quizzes:	10%
Class participation, <i>notebook</i> , attendance, other:	10%

Suggestion: Obtain phone/email info of reliable classmate(s) for missed assignments.  
Attendance: This will affect your daily grade. No makeups without verifiable written excuse. Point deductions for late work. Makeups given (possibly orally) at instructor discretion.

Homework: Will be assigned daily. Some HW may be collected or presented by students at the board; *all HW to be placed in the notebook.*

**Important:** Keep homework and *corrected quizzes / exams* in a neat organized notebook. *I will collect and grade this notebook periodically.*

We will study the following topics (and as time permits, additional topics):

- Scientific Computing, Matlab, C++/STL/LAPACK, Typesetting with LaTeX
- Linear Algebra (Systems, Eigenvalues, Vector Spaces, Numerical Solutions)
- Solving ODE, Systems of ODE, Modeling, Theory, Numerical Solutions.
- Orthogonal Functions, Fourier Series, Special Functions
- Solving PDE – First Order, Second Order (Traffic Flow, Heat, Wave, Poisson), etc.
- Modeling with PDE, PDE Theory, Numerical Solutions.
- Optimization, Nonlinear Systems, Newton's Method.

Organize Notebook as Follows (*Very Important!!!*):

- Definitions, Notation, Theorems
- Quizzes, Exams, Corrections
- Homework, Projects
- Code, Demos, Computing Handouts / Cheat Sheets