

MA (BMA) 574

Time: 1:30 - 2:45 MW

Place: HA 325

Instructor: Ralph Smith

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Text: Class notes

Computing: We will use Matlab and Maple.

Grades: The gradescale is: 90-100 A-,A; 80-89 B-,B,B+; 70-79 C-,C,C+; 60-69 D-,D,D+; below 60: F. The grades are based on the following coursework:

Homework and Projects:	60 %
Midterm Exam:	15 %
Final Exam (April 30, 2008):	25 %

Course Topics:

- Motivating Examples and Modeling Concepts
 - Dimensional analysis and scaling
- Materials Concepts and Structural Models
 - Smart material applications
 - Fundamentals of elasticity
 - Structural models for membranes, beams, plates and shells
 - Laboratory experiment: beam vibrations
- Acoustics and Fluids
 - Acoustics and wave phenomena
 - Fluid principles: Euler and Navier–Stokes models
- Electromagnetic Theory and Optics
 - Basic principles and Maxwell's equations
 - Fundamental optics principles
- Numerical Solution Techniques for PDE
 - Finite difference techniques
 - Galerkin and finite element methods

Academic Integrity and Disabilities Information: This is provided at the following web sites:

http://www.ncsu.edu/provost/academic_regulations/integrity/reg.htm

http://www2.ncsu.edu/ncsu/stud_affairs/counseling_center/dss/