MA (BMA) 574

Time: 1:30 - 2:45 MW
Place: SAS 2106
Instructor: Ralph Smith
Office: SAS 4140 318, Tel: 515-7552
Email: rsmith@ncsu.edu
Web: http://www4.ncsu.edu/~rsmith/


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:

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Homework and Projects</td>
<td>60 %</td>
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<tr>
<td>Midterm Exam</td>
<td>15 %</td>
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<tr>
<td>Final Exam (April 29, 2015)</td>
<td>25 %</td>
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</tbody>
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Course Topics:

- **Acoustics and Fluids**
  - Acoustics and wave phenomena
  - Fluid principles: Euler and Navier–Stokes models
  - Experiments: Non-Newtonian fluids, speed of sound measurement

- **Materials Concepts and Structural Models**
  - Fundamentals of elasticity and viscoelasticity
  - Structural models for rods, beams, membranes and shells
  - Smart material applications
  - Laboratory experiment: beam vibrations

- **Numerical Solution Techniques for PDE**
  - Finite difference techniques
  - Galerkin and finite element methods

- **Deterministic and statistical parameter estimation techniques**

- **Verification and validation of models**

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/