COURSE DESCRIPTION
MATHEMATICAL MODELLING
MA 361–3B,
SPRING 2014

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Dr. Carmeliza Navasca
E-mail: cnavasca@uab.edu
Office: CH 475B
Phone: (205) 934-8621
Office Hours: MonWed 11:00–12:00 PM, Tue 2:30–3:30 PM (or by appointment)

Course Info

Meeting times: MonWed, 5:30–6:45 PM
Meeting location: HHB 221
Prerequisite: Grade of C or better in MA 123 or MA 125 equivalent. Any student who has not fulfilled the prerequisite will be dropped from the class.
Credits: 3 semester hours

Important Dates

First day of our class: January 6, 2014
Last day to drop without paying full tuition: January 13, 2014
MLK Day (UAB Holiday): Monday January 20, 2014
Spring Break: March 24–28, 2014
Last day to withdraw with a “W”: March 31, 2014
Last day of our class: April 18, 2014
Final Project: Wed, Dec 11, 2013, 1:30–4:00 PM (Location to be announced.)

Course Policies

• Please make sure that you are able to receive e-mail through your Blazer-ID account. Official course announcements may be sent to that address.
• If you are contacted by the Early Alert Program, you should consider taking advantage of the services it offers. Various services to assist you are also listed in the Student Resources section of the Blazernet [http://uab.edu/blazernet] website.
• If you wish to request a disability accommodation please contact DSS at 934-4205 or at dss@uab.edu.
• The two lowest homework grades will be dropped to account for any missed assignments due to illness or any other circumstance.

Date: January 6, 2014.
**Course Description**

Mathematical modeling using computer software; connections to calculus and systems of ordinary differential equations are emphasized. Students translate verbal descriptions into mathematical form using appropriate units and reasonable relationships, construct and interpret multiple representations of mathematical relationships, including tabular, graphical, and schematic, use quantitative evidence produced by models as a basis for reasoned argument to unambiguous conclusions, communicate the mathematical structure of models appropriately to an audience in written form, using proper grammar, usage, spelling, and mathematical modeling conventions of language.

**Objectives of the Course**

Upon successful completion of the course, a student

1. develops the understanding of how the mathematical equations describe phenomena we see in engineering and science applications as well as biological applications
2. develops mathematical tools and implements algorithms from a given mathematical modeling problem;
3. learns the basic principles of mathematical modelling, i.e. solving differential equations and other mathematical equations and using algorithms and software tools for science, math and engineering problems

**Class Management via Blackboard**

- Homework and project assignments will be posted in Blackboard (Bb) ([http://www.uab.edu/bblearn/](http://www.uab.edu/bblearn/)).
- Bb will be used to post important handouts, class announcements, codes, grades and other pertinent links. Students should log in to Bb at least once a week! Students can also download the Blackboard Mobile Learn App for accessing Bb on-the-go via smartphones and ipads.

**Assessment Procedures**

- Student achievement will be assessed by the following measures:
  - **Weekly homework.** Homework will be due on Wednesday. There will be no extension of deadlines for any reason (however, the lowest two grades will be dropped). Homework contributes 30% to the course average.
  - **Announced quizzes.** Quiz problems are similar to the homework problem sets. Typically, the quizzes are each ten minutes long with one or two problems. Quizzes (and attendance) contribute 12% to the course average.
  - **Four projects.** Each project contributes 12% to the course average.
  - **Final project** The final contributes 30% to the course average.

Grading Scheme: 10% homework, 12% attendance & quiz, 12% project 1, 12% project 2, 12% project 3, 12% project 4, 30% final project

- Your course performance is your course average (including the final exam score). This is a number between 0 and 100.
• Your final grade is determined according to the following table:

<table>
<thead>
<tr>
<th>Course performance:</th>
<th>88-100</th>
<th>75-87</th>
<th>62-74</th>
<th>50-61</th>
<th>below 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Grade:</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
</tr>
</tbody>
</table>

**Tips**

• By working steadily and regularly, you will increase your chances to succeed in this course.
• Remember, being a full-time student is a full-time job.

**Academic Honor Code**

UAB Faculty expects all members of its academic community to function according to the highest ethical and professional standards. Academic dishonesty and misconduct includes, but is not limited to, acts of abetting, cheating, plagiarism, fabrication, and misrepresentation. Candidates are expected to honor the UAB Honor Code as detailed in the most current UAB Student Catalog. Please consult this resource for additional information regarding the specific procedures to be undertaken when a student violates the UAB Honor Code. See [http://www.uab.edu/students/academics/honor-code](http://www.uab.edu/students/academics/honor-code)

**Non-harassment, Hostile Work/Class Environment**

The UAB College of Arts and Sciences expects students to treat fellow students, their Course Instructors, other UAB faculty, and staff as adults and with respect. No form of hostile environment or harassment will be tolerated by any student or employee.