

COURSE DESCRIPTION
SCIENTIFIC PROGRAMMING
MA 360/560, 51953/4
FALL 2014

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Dr. Carmeliza Navasca
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Office Hours: Mon 11:00–12:00 PM, 2:15-3:15 PM, Wed 11:00–12:00 PM (or by appointment)

Course Info

Meeting times: MonWedFri, 9:05–9:55 AM
Meeting location: HHB 221
Prerequisite: Grade of C or better in MA 126 or equivalent. *Any student who has not fulfilled the prerequisite will be dropped from the class.*
Credits: 3 semester hours
Textbook: (1) *Insight Through Computing: A MATLAB Introduction to Computational Science and Engineering* by Charles F. Van Loan and K.-Y. Daisy Fan, SIAM, 2010.
(2) *Class Notes: MA 360/560, Scientific Programming* by Ian Knowles. (Chapters 2, 8 and 9)

Important Dates

First day of our class: August 25, 2014
Last day to drop without paying full tuition: September 2, 2014
Labor Day Holiday: September 1, 2014
Last day to withdraw with a “W”: October 24, 2014
Thanksgiving: November 24–28, 2014.
Last day of our class: December 5, 2014.
Project I: Fri, Sept 12, 2014
Project II: Fri, Oct 3, 2014
Project due dates: Project III: Fri, Oct 24, 2014
Project IV: Fri, Nov 21, 2014;
(These dates are approximate and may be slightly shifted due to unforeseen circumstances.)
Final Project Due Date: Wed, Dec 10, 2014

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.

Course Description

Programming and problem solving using Matlab and Fortran 90. Emphasizes the systematic development of algorithms and programs. Topics include iteration, functions, arrays, Matlab graphics, image processing and robotics. Assignments and projects are designed to give the students a computational sense through complexity, dimension, inexact arithmetic, randomness, simulation and the role of approximation.

Objectives of the Course

Upon successful completion of the course, a student

- (1) develops and implements algorithms from a given problem;
- (2) develops programming skills to produce working codes;
- (3) learns the basic principles of scientific computing, i.e. algorithms and software tools for science, math and engineering problems

Class Management via Canvas

- Homework and project assignments will be posted in Blackboard (Bb) (<http://www.uab.edu/online/canvas>).
- Canvas will be used to post handouts, class announcements, codes, grades and other pertinent links. Students should log in to Canvas at least once a week!

Assessment Procedures

- Student achievement will be assessed by the following measures:
 - **Weekly homework.** Homework will be due on most Fridays. 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 contribute 10% to the course average.
 - **Four projects.** Each project contributes 10% to the course average.
 - **Final project** The final contributes 20% to the course average.

Grading Scheme: 30% homework, 10% quiz, 10% project 1, 10% project 2, 10% project 3, 10% project 4, 20% 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:

Course performance:	88-100	75-87	62-74	50-61	below 50
Final Grade:	A	B	C	D	F

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 Misconduct

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 Academic Code of Conduct 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 Academic Code of Conduct. See <http://main.uab.edu/Sites/undergraduate-programs/general-studies/academic-success/67537/>

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.