Course Objectives: The purpose of this course is to strengthen your analytical and problem solving skills through application programming to help you to thrive in the engineering programs here at UML. At the end of the course you should be proficient in MATLAB, which is used in many courses here at UML. The second part of the course combines the new Analog Devices “Laboratory Anywhere” with applications of the Arduino micro controller and hardware software applications. You will construct several open ended design projects including: a traffic light controller, a digital night light, an op amp. Besides learning, I expect you to have fun in this course.

- Please check the Course Web Site at least once per week for news, announcements, homework assignments, and pre-laboratory information. Everything will be located there.
  - In the event of bad weather, check web site for instructions.
- Course Content: The course consists of Tuesday Lecture and 2 hours Lab per week. Lecture teaches basic theory used each week in the Laboratory. Labs meet Ball 420 or Maker Space Southwick 101.
- Purchasing Your “Lab in the Box” materials: You need to purchase on your own Lab in the Box. The Instructions are on the website and on the back of this syllabus. This saves you bookstore markup of 40%. We will give you a parts kit at the start of the “Lab in the Box” section. Text Materials are on the website and are free.
- Grading for the class consists of 5 graded Matlab exercises 30%, 2 programming assignments worth 20%, and 48% for 6 microcontroller labs, and the remainder for participation and attendance. There are no exams in this course. You must submit all labs to receive a grade of A or A-.
  - Some labs require formal reports. These must be typed and include your code, plots, and answers to questions. You will be graded as much for your quality of work in the report as getting the right answers.
  - Handing labs in late costs you 20/100 points per week. Labs should be handed in to your TA, not to me. You may help each other out, but each student is responsible for a unique submission.
    - Labs are due to your TA (not me) at the end of the week following the assignment of the Lab, Penalties start at that time
- Work Expectation: In addition to the Lecture and Laboratory, you will likely put in about 2 hours per week outside of the classroom completing lab reports, preparing for class etc. If you are not prepared to put this level of work in, please drop now. The course will have more work at the beginning as you are rapidly ramping up in Matlab.

- Cheating: This is a skills building class whose purpose is to get you ready for later classes. If you cheat, you really are cheating on yourself because you will not learn these skills.
• Ordering your “Laboratory Anywhere Materials”: For you to get the student discount you need to follow the instructions. On the website are links to the two products that you need to order:
  1) The Analog Discovery module (oscilloscope, function generator, logic analyzer, etc). This costs $159 with the student discount; you will use it hopefully all 4 years. When YOU SET UP YOUR STUDENT ACCOUNT REQUIRED, MAKE SURE YOU PUT MY NAME JAY WEITZEN in the comments. I have negotiated for you to get an extra $50 parts kit for free.
  2) You should also order the chipKIT uC32™ Prototyping Platform, an Arduino processor.
  3) You will need to get qualified for the student discount by entering some information about the class, my name (above) and your student status including your student e-mail.

If you decide not to continue with your engineering education, you can sell these to students who are taking this class spring or fall.