

**ECE 5397/6397: Introduction to Robotics**

**Spring 2016**

**Welcome**

Hi Javier,

Welcome to my Spring 2016 5397/6397 Introduction to Robotics Class! I want to make sure that you learn robotics well, and also enjoy the learning experience. With this in mind, I am writing to offer a few suggestions.

**Suggestion 1: Get the textbook now, and study Chapters 1 and 2 & Appendices A & B**

I like this textbook, a classic text on the fundamentals of robotics. It was written by some of the best experts in the field. Mark Spong was my MS advisor and now is dean of UT Dallas. Seth Hutchinson was my PhD academic advisor. It is smart to get the textbook now. It costs the same regardless of when you buy it, so why not buy it early. Importantly, you get a chance to peek into what lies ahead this semester. Here is a link to the book’s website, but you may purchase the book wherever you can find it. There are cheaper sources (and e-book versions):

[Robot Modeling and Control](http://www-cvr.ai.uiuc.edu/~seth/index.php?u=spongbook) **Mark W. Spong, Seth Hutchinson, M. Vidyasagar,** John Wiley and Sons, Inc., 2005

In my experience, the best way to succeed in a course is to follow my simple recipe. 1. *Read ahead for each class*. This way, you know what to expect, and what topics you may find challenging. 2. Bring your questions to class. If you have read ahead, you will get a LOT more out of the lecture, and understand my answers to your questions MUCH BETTER. You may find that you can succeed with less effort if you follow my recipe.

**Suggestion 2: Purchase an Arduino Mega (or suitable clone)**

The University of Houston was selected as a finalist for the NASA Swarmathon Challenge, <http://nasaswarmathon.com/>. As a finalist, we have been awarded three ‘swarmie’ robots, as well as access to a simulator environment in ROS for testing algorithms. Students will form 2-person teams. Each team will complete three challenges in ROS, concluding with an in-class competition on the Swarmathon challenge. Winning teams will be allowed to implement on the hardware robots and will compete in the national competition. Before class begins, please complete the introductory modules at <http://nasaswarmathon.com/outreach/> and install ROS, <http://www.ros.org/>, on your computer.

**Suggestion 3: Purchase an Arduino Mega (or suitable clone)**

We will construct low-cost 4-DoF robot arms in the class to explore kinematics/inverse kinematics, and trajectory following. Students will form 2-person teams. I’ll provide the laser cut parts, teams provide the servos and Arduino. Download the software and practice controlling the onboard LEDS, or get a motor shield and control motors. You can see the arms we will build at <http://mearm.com/>.

**Suggestion 4: (For fun and to be up-to-date in Robotics) Sign up for the robotics feed from IEEE spectrum.**

Robotics articles are available at <http://spectrum.ieee.org/robotics>. This year we’ll try to start each Tuesday lecture with a highlight from the video Friday series: <http://spectrum.ieee.org/automaton/robotics/humanoids/video-friday-happy-robot-holidays>.

Please sign up for the RSS feed (or weekly email/Facebook/twitter or LinkedIn:

<http://feeds.feedburner.com/IeeeSpectrumRobotics>

Looking forward to working with you,



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