ROB 514: Introduction to Robotics

Fall 2017
Course Credits: 4 (220 minutes of combined lecture and discussion per week)

XX XX:XXam to XX:XXam
Room: XXXX

Instructor: Prof. Bill Smart, 316 Graf Hall smartw@oregonstate.edu
TAs: TBD

Office Hours:
- Smart, 316 Graf Hall, XX XX:XXam to XX:XXam
- TA, XXX XXX Hall, XX XX:XXam to XX:XXam

Required Text
None. All readings will be made available through Canvas.

Prerequisites, Co-requisites, and Enforced Prerequisites: None.
Level Limitations: +02 (Graduate), Enrolled in Robotics Program

Evaluation of Student Performance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing Assignments</td>
<td>40%</td>
</tr>
<tr>
<td>Homework</td>
<td>40%</td>
</tr>
<tr>
<td>Professional Skills Assignments</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
</tbody>
</table>

Course Content

Introduction to Robotics is a broad introduction to the field of robotics, and to graduate Robotics program at Oregon State University. The goal of the class is to take students with different backgrounds (mechanical engineering, computer science, electrical engineering, physics, etc) and give them a common base in the fundamentals of robotics. A secondary goal is to introduce students to the Robotics program at Oregon State, and to give them some of the skills that will make them successful, both in the program and as a professional roboticist.
Topics Covered

Basic dynamics and kinematics of robot systems; sensors and sensor processing; actuators and basic control; software architectures for robots; coordinate frames and transforms; human-robot interaction; social, ethical, legal, policy, and economic issues in robotics; professional skills for roboticists; overview of robotics research at Oregon State University.

Learning Outcomes

By the end of the course, students will:

1. Understand the current state of the art in the various subfields of robotics, and be able to identify the open problems in these areas.
2. Have a basic understanding of sensors, actuators, sensor processing, robot programming, robot kinematics, and coordinate transforms.
3. Be able to read and understand current research papers in all areas of robotics.
4. Be familiar with the Robotics program at Oregon State University, with its faculty members, and with the research currently being carried out there.

Collaboration Policy

The collaboration and plagiarism policy for this class might be a little different than other classes you have taken. Unless specifically instructed otherwise, you are actively encouraged to work with other students to understand the problems, to look on the web for code that might be useful to you, and to be "inspired" by this code. However, you need to disclose all of these collaborations in comments in your code or in any written work. It's fine to fine (and use) things from the web, but you must tell us that you're doing it. You also need to be able to explain to the TA what your code is doing, even stuff that you got from outside sources.

Don't just copy code without understanding it. Look it up, read it, think about it, then close the browser and write your own version of the code. Disclose your sources.

If you're ever in doubt about what's allowed and what's not, then ask the instructor or the TA.

Academic Dishonesty

Although your are encouraged to work with other students in the class, you should never misrepresent someone else’s work as your own. Oregon State defines academic dishonesty as: “Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.” Academic dishonesty includes: cheating, fabrication, assisting,
tampering, and plagiarism. Students are expected to be familiar with the University academic dishonest code, available at http://studentlife.oregonstate.edu/studentconduct/offenses-0. Academic dishonesty will not be tolerated in this class, and all instances will be dealt with according to University policy.

Accommodations Statement

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.