

Cpt_S 483: Introduction to Robotics, Fall 2014

Dr. Matthew E. Taylor (“Matt” is preferred)

http://eecs.wsu.edu/~taylorm/14_483

Email: taylorm@eecs.wsu.edu (Please tag emails with [CS483] for fastest response)

Dana 3, Noon-1:15pm T,Th

Office hours: meetme.so/taylorm

Office: EME 137

TA and Dana 3 Hours: *See course webpage*

Piazza link (discussions): http://piazza.com/wsu/fall2014/cpt_s483/home

Github link (code and background):

<https://github.eecs.wsu.edu/pages/flukolo/Cpts483-Intro-To-Robotics/>

This course introduces the basic concepts in robotics from a computer science perspective. Topics include sensors, actuators, control architectures, learning, and human-robot interaction. The focus of the class will be on control of mobile robots and solving artificial intelligence problems. The course will culminate in a team-based, hands-on robotics project. Policies in this syllabus are subject to revision, with notice.

Co-Requisites:

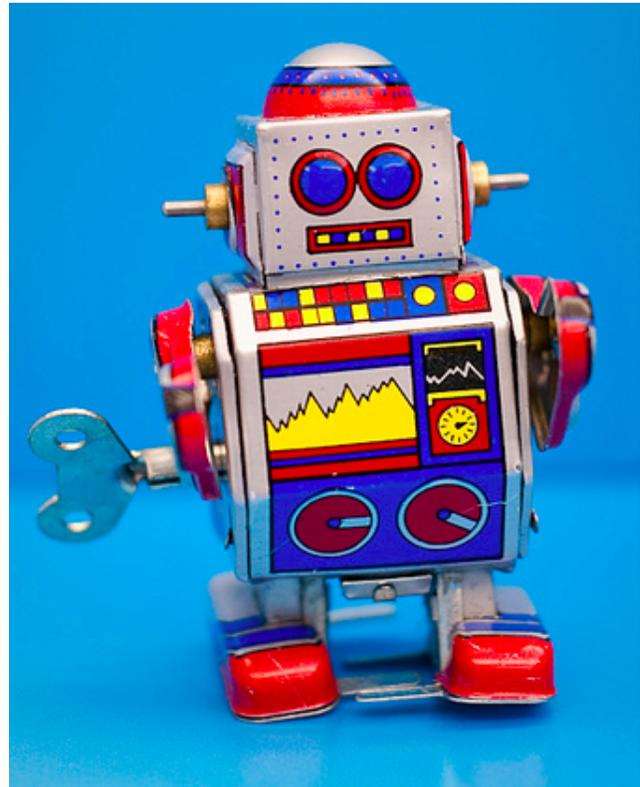
CptS 440 or permission of the instructor

Credits:

3

CptS Course Required/Elective:

Selected elective



Textbook

- *Introduction to Autonomous Mobile Robots*, Second Edition, 2011. By Siegwart, Nourbakhsh, and Scaramuzza. ISBN-10: 0262015358.

Student Learning Outcomes

- Understanding the major challenge areas in mobile robotics
- Ability to apply basic robotics algorithms to solve fundamental robotics problems
- Ability to apply basic artificial intelligence algorithms to solve path planning and localization problems

ABET CptS Criterion 3 Outcomes

- a) An ability to apply knowledge of computing and mathematics appropriate to the discipline. In particular, students should be able to apply this knowledge in a way that demonstrates comprehension of the tradeoffs involved in the modeling, design and development of software systems of various scales and complexity.
- b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- f) An ability to communicate effectively.
- i) An ability to use current techniques, skills, and tools necessary for computing practice.

Required Assignments and Grading Policies

Late work will be accepted, but the grade will be reduced by 10% for every day that it is late. For example, suppose a lab would be graded as 85/100. If it were handed in 1 hour late, it would receive 75/100. If it were handed in 25 hours late, it would receive 65/100.

A student missing the midterm or final will receive a zero except under exceptional (documented) circumstances.

The course grade (subject to change with notice) will be based on:

- 25% 3 homeworks
- 50% 6 labs
- 25% final project

Attendance is *strongly* encouraged but not required.

Course Schedule

An evolving schedule, along with assignments and lecture slides, may be found on the course webpage. Course topics will include:

- ROS
- Control Architectures
- Sensors and Vision
- Locomotion, Kinematics, and Maneuverability
- Localization and Mapping
- Planning and Navigation
- Robot Learning
- Multi-robot coordination

Email

I expect to answer student email within 48 hours, unless it is the weekend. Feel free to ping me if it has been more than two working days and I have not responded. To make sure your mail gets filtered correctly (i.e., gets my attention), please begin emails with a subject of:

[CPTS483]

Phones/laptops/i-Things during lecture

You may use electronics to take notes and/or look up information in class. However, please make sure your device is silent. Penalties for electronic noise in class include singing a couple of bars of a song in front of the class and leading class a discussion during the next lecture.

Note that these devices also present temptations that many students find irresistible. You should not use your devices to play games, check Facebook, respond to email, etc., during lecture. Such activities not only distract you, but (more importantly) they may distract others around you.

Academic Integrity

Students are encouraged to use the internet and work with classmates on assignments. However, each student must turn in original work. No unattributed copying from other sources will be accepted. Students who violate this policy will receive a zero grade on the assignments in question and/or receive a failing grade for the course. Please talk to the instructor if you have questions about this policy. All academic integrity issues will be handled in accordance with university regulations. See conduct.wsu.edu for details.

Statement Concerning Accommodations:

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building, Room 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. More information can be found at accesscenter.wsu.edu

Safety and Emergency Notification

Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (<http://safetyplan.wsu.edu/>) and visit the Office of Emergency Management web site (<http://oem.wsu.edu/>) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.