CSCE374 – Robotics
Fall 2012 – Syllabus

Instructor

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Lectures

Tuesdays and Thursdays
12:30-1:45pm
Swearingen 2A21

Office hours

Tuesdays and Thursdays
2:00–3:00pm

You're welcome to stop by at other times, or to make an appointment.

Description

This class is an introduction to robotics from a computing perspective.

After completing this course, you should be able to:

1. Describe the hardware components of robot systems.

2. Apply algorithms for robotic perception, planning, navigation, localization, and manipulation.

3. Implement and use algorithms for controlling mobile robots.

Prerequisites

CSCE 212 (Introduction to Computer Architecture)
CSCE 240 (Introduction to Software Engineering)

Textbook

There is one required textbook:

> Maja J. Mataric, *The Robotics Primer*. MIT Press, 2007.

Reading assignments throughout the semester will require access to this book. Fortunately, at around $20, this book is relatively inexpensive.

Webpage

Information about the course, including assignments and announcements, will be posted at this site:

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http://www.cse.sc.edu/~jokane/teaching/374
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I encourage you to subscribe to the RSS feed available at this site for course announcements. If you don't use an RSS reader, you might instead use an RSS-to-email service (ask Google for one) to stay up-to-date.

Course Policies

- Attendance: You are expected to attend and participate in each lecture, and I will make every effort to ensure that class attendance is worth your time. Missed tests due to unexcused absences will result in a score of 0.

  Makeup exams will be allowed only with preapproval of the instructor or with an acceptable, documented reason. Acceptable reasons for makeup exams include severe illness, family emergencies, or other unavoidable events including dangerous weather conditions and car accidents. The format of makeup exams may differ from the format of the original exam.

- Cheating (short version): Don't.

- Cheating (long version): Academic dishonesty undermines the educational mission of the course and reflects disrespect to your classmates and to your instructor. Therefore, you are expected to practice the highest possible standards of academic integrity. The minimum penalty for cheating is a -50% score on the assignment. Additional, more severe penalties may be levied for repeated or egregious violations. This policy includes improper citation of sources, using another student's work, and any other form of academic misrepresentation. Details on the University cheating policy can be found in the section on "Academic Responsibility" in the Carolina Community Handbook.

  In the absence of instructions to the contrary, it *is* permissible to consult Internet resources to complete the assignments in this class, provided that you give adequate citations of every resource you consult. However, it is *not* permissible to copy code or anything else directly from the web. Representing the work of others as your own is *never* permissible. When in doubt, ask first.

- Late assignments: Homework assignments will not be accepted late, because the answers will be discussed in class immediately. Programming assignments will be accepted up to three days late, subject to a 10% penalty for each day or fraction of a day.

- Mobile devices: Please silence any mobile devices before coming to class. If your phone rings in class, I reserve the right to answer it for you and take a message. Likewise, if my phone rings during class time, I will allow a student to answer it.

- Computing platform: You will be expected to write software to control real robots. These tasks are most straightforward in the C language, and the course will provide some direct instruction on how to do so. You are also welcome to identify and use other appropriate languages if you prefer, provided that using such a language does not trivialize the assignment. However, I will not provide assistance with this.

- Policy changes: Changes to the syllabus at the instructor's reasonable discretion, including changes to the evaluation and grading mechanisms, are possible but unlikely.

Grading

Your learning in this course will be evaluated based on:

1. *Homework* assignments throughout the semester.

   Many (but not all) of these homeworks will be reading assignments drawn from the textbook and other sources. For each reading assignment, you should demonstrate that you have read and understood the material by *creating a multiple choice question* suitable for an exam covering that material. For full credit, your question should:

   (a) Draw from the essential content of the reading, showing that you've understood what's important about the chapter or paper.

(b) Offer four potential answers, including exactly one correct answer and at least two others that are plausible but incorrect.

(c) Accurately identify which answer is correct.

(d) Be submitted before the start of class on the due date.

You should use the CSE Moodle server (`https://dropbox.cse.sc.edu`) to submit your question.

These assignments will account for **15%** of your final grade.

2. *Robot programming assignments* using the iRobot Create platform. There will be approximately six of these assignments, which will be completed in small groups. The programming assignments will vary in difficulty, and therefore are unlikely to be weighted evenly in relation to one another. Programming assignments will account for **30%** of your final grade.

3. Two *in-class tests*, each accounting for **15%** of your final grade.

4. A *final exam*, covering the entire course, but with greater focus on the final third of the course. The final will account for **25%** of your final grade.

The following table gives upper bounds on the thresholds for determining final grades. I reserve the right to adjust these thresholds downward, but promise not to adjust them upward.

A	$\geq 90\%$		C	$\geq 70\%$
B+	$\geq 87\%$		D+	$\geq 67\%$
B	$\geq 80\%$		D	$\geq 60\%$
C+	$\geq 77\%$		F	$< 60\%$

My goal is to ensure that all of the grading for this course is fair and correct. If you believe there's been a mistake in grading, please bring it to my attention after class or in office hours within one week after the exam or assignment is returned. Regrade requests after one week will be politely declined.

Grades will be posted on the CSE moodle server (`https://dropbox.cse.sc.edu`). It is your responsibility to verify that grades are correctly recorded on this site.

Important Dates

The schedule of topics we will cover is flexible enough that it would be pointless to include a detailed calendar here. The following dates, however, are unlikely to change.

Date	Event
August 29	Last day to add or drop
September 3	No class: Labor Day
September 25	Test 1
October 11	Last day to drop without WF
October 18	No class: Fall Break
November 1	Test 2
November 6	No class: Election Day
November 22	No class: Thanksgiving Break
December 11	Final Exam (12:30pm–3:00pm)