CSCE574 – Robotics
Spring 2012 – Syllabus

INSTRUCTOR

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Office hours: Tuesdays and Thursdays, 2:00–3:00pm
These hours may be adjusted occasionally.
Other times by appointment.

LECTURES

Tuesdays and Thursdays, 12:30-1:45pm
Swearingen 2A22

DESCRIPTION

This class is an introduction to robotics from a computing perspective. After completing this course, you should be able to:

1. Describe the components of robot systems.
2. Use a robot's work space and configuration space for representation, reasoning, and planning.
3. Implement and use algorithms for controlling mobile robots.

PREREQUISITES

CSCE 211 (Digital Logic Design)
CSCE 212 (Introduction to Computer Architecture)
CSCE 245 (Object-Oriented Programming Techniques)

TEXTBOOK

There are two recommended textbooks for the course:

> Gregory Dudek and Michael Jenkin, *Computational Principles of Mobile Robotics*, Second Edition. Cambridge University Press, New York, NY, 2010.
>
> Howie Choset, Kevin M. Lynch, Seth Hutchinson, George Kantor, Wolfram Burgard, Lydia E. Kavraki, and Sebastian Thrun, *Principles of Robot Motion: Theory, Algorithms and Implementations*, MIT Press, Cambridge MA, 2005.

I think these books are a good investment, and studying them carefully is likely to help you in this course. However, the course is designed for you to succeed without them.

WEB PAGE

`http://www.cse.sc.edu/~jokane/teaching/574`

Homeworks and announcements will be posted to this site. I encourage you to subscribe to the RSS feed for course announcements. If you don't use an RSS reader, you might instead use an RSS-to-email service to stay up-to-date.

COURSE POLICIES

Cheating policy (short version): Don't.

Cheating policy (long version): Academic dishonesty reflects disrespect to your classmates, to your instructor, and to the University. 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.

Cell phones: 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.

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.

Computing platform: You will be expected to write software to control both real and simulated 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.

EVALUATION

Your learning in this course will be evaluated based on frequent written homework assignments, approximately five programming assignments (both individually and in groups), one in-class midterm, and a final exam. The programming assignments are unlikely to be weighted evenly in relation to one another. In addition, graduate students will be expected to complete an additional research-related project.

Undergraduates:

Written homework	15%
Programming assignments	35%
Midterm	20%
Final exam	30%

Graduates:

Written homework	13.64%
Programming assignments	31.82%
Midterm	18.18%
Final exam	27.27%
Research project	9.09%

The following table gives upper bounds on the thresholds for determining final grades. I reserve the right to adjust these thresholds downward, but promises 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	$< 60\%$

Keep in mind that I am grading your work, not you as a person.

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 not be considered.

Grades will be posted on the CSE moodle server. It is your responsibility to verify that grades are correctly recorded on this site.

IMPORTANT DATES

The schedule of topics we will cover is so tentative that it would be pointless to include the details here. The following dates, however, are unlikely to change.

Date	Event
Feb 23	Midterm
Feb 27	Last day to drop without WF
Mar 6, 8	Spring break, no class
May 1, 2pm	Final Exam