CS148
Building Intelligent Robots

Introductory Missive *23 Jan 2003*

CS148 will meet Tuesdays and Thursdays from 9–10:20am. On Tuesdays there will be a lecture in Lubrano (CIT 477) and on Thursdays the format will be more informal, with labs and demonstrations of students work in the MSLab (CIT 167). We will be using the LEGO Mindstorms kits throughout the course, and since these resources are limited, enrollment will be limited to 26 with one kit to each pair of students. Enrollment will be determined by a lottery weighted towards seniors and concentrators; to be eligible to enter the lottery you must attend the first class and fill out the form you will receive there.

The current syllabus is available on the course web page, `www.cs.brown.edu/courses/cs148`. Labs and projects will be posted there as they are assigned, so check the webpage and the course newsgroup, `brown.cs.cs148`, often.

Course Staff (`cs148tas@cs.brown.edu`)

Professor	Eugene Charniak (`ec`)
Head TA (`cs148headtas@cs.brown.edu`)	Bryant Ng (`bkng`)
Undergraduate TAs	Colin Hartnett (`cphartne`) David Eustis (`deustis`) Stacy Wong (`xwong`)

Class Format

As stated above, there will be a lecture every Tuesday. The first part of class Thursday will be devoted to a demonstration of the previous week's project, and the second half will be a lab focusing on new material.

Prerequisites

CS 4 or CS 15/16 or CS 17/18.

Labs and Projects

Starting in the second week of the semester there will be a lab and project every week for six weeks. The handout, which you will receive each Tuesday, will tell you what to do to prepare for Thursday's lab, in addition to describing the requirements for both the lab and the project. The lab should be finished by the end of class Thursday, and the project, along with a writeup describing your work, will be due before class the next Thursday.

The midterm project, RoboTag, will last two weeks and be due just before spring break. The final, an open-ended project, will go out after spring break and be due at the end of the semester.

In addition to the labs and projects themselves, you will be required to turn in writeups of your work which are due at the same time as your projects.

Writeups

The project reports will be due at the same time as the project itself. Each handout will contain the details of what the report should contain.

Collaboration Policy

You will work in pairs for all of the labs and projects. Unless there are exceptional circumstances, you will work with the same person all semester. For the final, your team may choose to work with another team if you want to do an especially extensive project requiring two RCX bricks. There will be more details about this as the final approaches.

No collaboration is allowed on the project writeups, not even with your partner. You are encouraged to take notes and make diagrams while you're building and programming your robots. But each partner's writeup should contain their own thoughts and ideas and are to be written up individually.

While working on a project, collaboration with other groups is allowed up to but not including sharing of code or written design documentation.

Grading

The grade distribution is as follows:

6 labs and projects	30%
midterm	35%
final	35%

Grading of all assignments will be interactive as you will not want to take your robot apart for the next assignment before its been graded. Therefore it is important that you finish your projects on time. Projects will be graded at the beginning of labs on Thursdays. Grading for the midterm and final will be covered in the handouts.

Late Policy

Labs should be completed during lab time, but if you are unable to do so, you must finish up during Thursday TA hours. If you miss lab for some reason, you will be able to come to hours some time within the following week and make it up. It must be completed before the following class on Thursday.

You will be allowed one 'late day' on your projects. After you use your one late day, a missed project means no credit. You must request the late date prior to the due date.

Late midterm and final projects will not be accepted.

Demo Days

You have to attend the Midterm Competition and the Final Project Demo Day on March 20th and May 1st respectively. You should make sure you will be able to attend class during these days.

brickOS

The LEGO Mindstorms kits come with a visual programming tool called RIS. You are welcome to play around with this if you would like, but for the course we will be using a more traditional C-based programming language: brickOS. More information will be presented during the first classes and lab. Our labs will be held in the MS Lab (CIT 167).

LEGOs

On Thursday, January 30, you will be given a LEGO kit which includes:

- RCX brick
- two motors
- three light sensors
- two touch sensors
- two rotation sensors
- infrared port and cable
- four short wires
- two long wires
- LEGO plier
- starting set of batteries (6 AA, 1 9V)
- a plastic container for storing your robot

Because of the difficulty of keeping track of the smaller LEGO pieces, you will not be able to take these home except when they are part of your robot.

Hours

Hours will be held in the Lego Lab (CIT 249) on the 2nd floor. You will have card access by early next week after enrollment has been finalized. LEGOs will be available for use at anytime. Students may use the two nodes in the Lego Lab, harkonnen and lego, as long as no TA is holding hours and wants a node. If during hours, the Lego Lab gets too crowded, hours will be held in fishbowl (CIT 244).

The schedule is available off the course web page. Please let us know if the current times don't work or if more hours on certain days would be better. We don't want to be holding hours when no one can take advantage of them, so feedback (sent to `cs148tas@cs.brown.edu`) would be appreciated.

Lego Lab

Everybody will have access to the Lego Lab so its in the best interest of everybody to keep the Lab neat and clean. This includes puting back the legos you don't use to their correct bin after you are done building your robot. The bins have been painstakingly organized by your TA's so please do NOT place pieces in the wrong drawers.

Required Books

- Martin: *Robotic Explorations: A Hands-On Introduction to Engineering*, Prentice-Hall, 2001.