CS 106: Personal Robotics, Spring 2012


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Robots are becoming increasingly common --- they will soon become ubiquitous in home and office settings, accomplishing a variety of everyday and specialized tasks. This course focuses on robot control, providing an exciting introduction to robotics and to computer science. Additionally, students will learn about current robot and artificial intelligence capabilities, allowing them to better understand 21st century innovations.

This course serves as an introduction to computer science, appropriate for both majors and non-majors alike, and no prior experience is required.

**Learning Objectives:**

Students will have

- A basic understanding of robotic techniques, emphasizing sensing and action.
- An ability to understand agent-based reasoning.
- A comprehension of fundamental computing concepts, including basic object-oriented design, data structures, and algorithms.

**Learning Outcomes:**

Students will be able to:

- Design algorithms to solve problems in the physical world.
- Formulate scientific hypotheses about the relative performance of algorithms.
- Correctly implement short algorithms from a description (i.e., less than one page of code).
- Successfully code a short Java program (i.e., less than three pages of code).
- Evaluate the performance of algorithms and the validity of the original hypotheses.
- Construct an internal model of the world that robots can reason about.

**ABET Learning Outcome:**

- An ability to apply knowledge of computing and mathematics appropriate to the discipline.

**Course Schedule**

An evolving schedule, along with assignments and lecture slides, will be posted on the course website. Below is a preliminary schedule for the semester.

- 2/20: Midterm 1
- 3/26: Midterm 2 (Lab Exam)
- Exam Week: There will be a final – wait for the date to be announced by the registrar before scheduling any trips!
Assessment Information and Grading Policy
The course grade (subject to change with notice) will be based on:

- 30% from projects/labs,
- 40% from midterms (20% each),
- 25% from the final, and
- 5% from class participation

Lectures
Attendance in lecture strongly encouraged --- if you are not in class, you cannot participate in the discussion. Just a warning, one of my pet peeves is having students arrive late. Please make every effort to arrive on time (but I’d rather have you come in late than miss the class altogether).

If work done by the class during a lecture is graded and you miss lecture, you will receive a zero for the assignment.

Labs
Lab attendance is mandatory. Absence will result in a grade of 0 for the particular assignment. Lab attendance is not required if you have submitted and finalized the assignment (a functionality provided by Moodle -- no modifications will be allowed after you finalize the submission) before the beginning of the lab period.

Late Work
Late work will not be accepted. The Moodle submission link will be closed promptly at the deadline and submissions made after the due time (e.g., via email) will not be graded.

Academic Honesty Statement
All students are expected to adhere to the college policy on academic honesty as listed in the Student Handbook. Homework will be done individually unless otherwise specified in writing on the assignment. You are allowed to discuss projects and labs with other students but may not share code. Any work that is not fully done by an individual must list all collaborators. Likewise, any code used from the Internet must be clearly cited.

Request for Accommodations
In compliance with Lafayette College policy and equal access laws, I am available to discuss appropriate academic accommodations that any students with a disability require. Requests for academic accommodations need to be made during the first two weeks of the semester, except in unusual circumstances, so that arrangements can be made. Students must register with the Office of the Dean of the College for disability verifications and for determinations of reasonable academic accommodations.