Course Syllabus – CSC 444/544 – Introduction to Robotics

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Meetings: 1:15-2:45, Mondays & Wednesdays
Office Hours: 11:00-12:00 (Monday & Wednesday), 1:00-3:00 (Tuesday & Thursday) + by appointment

Status within the Curriculum
Elective

Course Description
Introduction to programming behavior based control of modern mobile robots, with a focus on the Robot Operating System (ROS).

Course Prerequisite(s)
1. CSC 307 -- Data Structures, required
2. CSC 412 -- Artificial Intelligence, preferred

Learning Outcomes
Upon completion of the course, students will
1. understand the unique requirements of robot problem solving and programming
2. understand simple control systems
3. be able to design and implement behavior based controllers for a simple robot
4. be able to program within the Robot Operating System (ROS)
5. understand the concepts of stochastic state estimation for robot localization
6. have the experience of utilizing ROS code developed in simulation, to control a physical robot

Textbook(s) and/or Other Required Material
No specific textbook is required for this course. The course outline will follow the (suggested reference) book: 
Course slides will be posted on the class website at: http://www.cs.usm.edu/~banerjee/CSC444
Various notifications and assignments will also be posted on this web page, so be sure to check this URL often.

Attendance
You should do your best to attend every class. Knowledge presented in class will be critical for passing the midterm and the final. In addition, pop quizzes (at the very beginning of class) based on the week’s readings are always a possibility. If you are late for class, you may miss a quiz, unless prior arrangements are made with the instructor.

Workload
There will be a few programming assignments, and a final group project (accompanied by a group presentation), in addition to pop quizzes, a midterm, and a final. The workload will be targeted to roughly 6 hours per week outside of class.
Grading

10% Quizzes
40% Assignments/Projects
10% Presentation
20% Midterm
20% Final

Late assignments/projects will be penalized by 20% per calendar day, except for extreme circumstances. If possible, give the instructor advance notice of any problems. Extra credit may be offered periodically, so take advantage of it when it arises. There will not be extra credit available toward the end of the course, so plan accordingly. In order to get a good distribution of grades, it might be necessary to apply a scale or curve.

Academic Support Resources

Please see the USM Student Success Website: http://www.usm.edu/success for information on where you can find tutoring and other academic assistance, as well as the location of key resources on campus.

If a student has a disability that qualifies under the Americans with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies.

Address:
The University of Southern Mississippi
Office for Disability Accommodations
118 College Drive # 8586
Hattiesburg, MS 39406-0001
Voice Telephone: 601.266.5024 or 228.214.3232
Fax: 601.266.6035

Individuals with hearing impairments can contact ODA using the Mississippi Relay Service at 1.800.582.2233 (TTY) or emailing ODA at oda@usm.edu.

Academic Integrity

All students at the University of Southern Mississippi are expected to demonstrate the highest levels of academic integrity in all that they do. Forms of academic dishonesty include (but are not limited to):

1. Cheating (including copying from others’ work)
2. Plagiarism (representing another person’s words or ideas as your own; failure to properly cite the source of your information, argument, or concepts)
3. Falsification of documents
4. Disclosure of test or other assignment content to another student
5. Submission of the same paper or other assignment to more than one class without the explicit approval of all faculty members’ involved
6. Unauthorized academic collaboration with others
7. Conspiracy to engage in academic misconduct

Engaging in any of these behaviors or supporting others who do so will result in academic penalties and/or other sanctions. If a faculty member determines that a student has violated our Academic Integrity Policy, sanctions ranging from resubmission of work to course failure may occur, including the possibility of receiving a grade of “XF” for the course, which will be on the student’s transcript with the notation “Failure due to academic misconduct.” For more details, please see the University’s Academic Integrity Policy (https://www.usm.edu/institutional-policies/policy-acaf-pro-012%20). Also check out the website: https://www.usm.edu/provost/students-guide-academic-integrity. Note that repeated acts of academic misconduct will lead to expulsion from the University.