

COMS 6731, Humanoid Robots, Course Information

T-TH, 4:10 – 6:00 PM

Room 545 Mudd

Professor: Peter Allen, allen@cs.columbia.edu, 619 CEPSR. Office Hours: W, 11:30 – 12:30

TAs: Jingxi Xu – jingxi.xu@columbia.edu Office Hours Wed. 3-4, Th 10-11, 6LW1 CEPSR

Neil Chen – neil.chen@columbia.edu Office Hours Mon 2-4, 6LW1 CEPSR

Prerequisites: A course in at least ONE of the following: Robotics, Computer Vision or Machine Learning.

Course Format: We will read a set of papers on each of the syllabus topics below. Students will sign up to present a paper to the class from the syllabus.

Grading: Students will be graded on 1) class participation, including one programming assignment (25%), 2) a paper presentation on one of the reading list papers (25%), and 3) an individual or group project (50%). A project must be completed to receive a final grade.

Student Talks page: <http://www.cs.columbia.edu/~allen/S19/talks.html>

Projects Page: <http://www.cs.columbia.edu/~allen/S19/projects.html>

Syllabus Topics:

1. Introduction to Humanoids
2. Hardware and Mechanical design
3. Using the ROS/Gazebo simulation environment
4. Motion and Path planning
5. Learning/Cognition
6. Sensing/Perception
7. Grasping and Manipulation
8. Social Interaction
9. Human-Robot Interfaces (HRI)
10. Brain-Computer Interfaces