New York University Tandon School of Engineering

Department of Computer Science and Engineering
Course Outline CS-GY 6613 Artificial Intelligence
Fall 2021
Professor Julian Togelius
Mondays 6pm-8.30pm; 370 Jay Street, Room 202

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Teaching hours: Mondays 10 pm, 5pm, 9 pm
TA hours: TBA

Course Pre-requisites
Intermediate programming skills and knowledge of basic algorithms and data structures.

Course Description
This course is an introduction to the field of artificial intelligence, including some of its core methods and a few of its numerous applications. The course will cover various forms of search and optimization, basics of logical knowledge representation and of different machine learning approaches. The application examples will mostly be taken from games and robotics.

Course Objectives
After taking the course, students should be able to

- Demonstrate knowledge of core methods in AI;
- Demonstrate insight into philosophical issues surrounding AI;
- Implement core AI algorithms;
- Apply core AI algorithms to solve simple problems in game-playing, robotics or similar fields.

Course Structure
Weekly lectures. Exercises connected to lectures. Two exams. Three assignments based on implementation of AI algorithms.

Readings
The required text for the course is: Stuart Russell and Peter Norvig. Artificial Intelligence: A Modern Approach, third edition. Prentice Hall, 2009.

Optional paper readings will be given via NYU Classes.

Course requirements

Students are expected to take part in lectures, and work individually to implement AI algorithms.

Grading

10% Class exercises
70% Assignments
30% Exams

Schedule

Sep 13 Introduction. What is AI?
Sep 20 Uninformed search.
Sep 27 Informed search and optimization.
Oct 4 Evolutionary search.
Oct 12 Adversarial search.
Oct 18 Monte Carlo Tree Search.
Oct 25 Midterm
Nov 1 Supervised learning intro.
Nov 8 Decision trees.
Nov 15 Neural nets with backpropagation.
Nov 22 Reinforcement learning.
Nov 29 Clustering.
Dec 6 Philosophical perspectives.
Dec 13 The research frontier.
Dec 20 Final exam.

Moses Center Statement of Disability

If you are student with a disability who is requesting accommodations, please contact New York University's Moses Center for Students with Disabilities at 212-998-4980 or mosescsd@nyu.edu. You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at www.nyu.edu/csd. The Moses Center is located at 726 Broadway on the 2nd floor.