

Introduction to Artificial Intelligence (EECE/COMP 4720/6720)

Spring 2023

Instructor: Bonny Banerjee, Ph.D.

Contact Information:

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Office Hours: Just after class, or by appointment

When: MWF 11:30 am-12:25 pm

Where: Dunn Hall 124

Course Description:

Fundamentals of programming in LISP; central ideas of artificial intelligence, including heuristic search, problem solving, slot-and-filler structures, and knowledge representation.

Note: Prior knowledge in LISP is not required. Class project will involve some programming that can be done in any language (C/C++/C#, Java, MATLAB, Python, etc.). Any student not comfortable with programming should talk to the instructor in the first class.

Prerequisites:

EECE 2207 Engineering Math Applications (3 credits), or COMP 2150 Object-Oriented Programming and Data Structure (4 credits), or permission of instructor.

Required Text:

Artificial Intelligence: A Modern Approach by Stuart Russell and Peter Norvig

Syllabus:

Introduction to a computational approach to artificial intelligence, intelligent agents, problem solving by searching, beyond classical search, logical agents, first-order logic, inference in first-order logic, classical planning, planning and acting in the real world, quantifying uncertainty, probabilistic reasoning, probabilistic reasoning over time.

Topics (15 weeks):

Course aims and agenda

Chapter 1: What is "intelligence"?

Chapter 2: Intelligent agents
Chapters 3-6: Problem solving
Chapters 7-12: Knowledge, reasoning and planning
Chapter 13: Quantifying uncertainty
Chapter 14: Probabilistic reasoning
Chapter 15: Probabilistic reasoning over time

Important dates:

1/18 (Wednesday): First class
3/3 (Friday): Midterm exam
3/6-3/10 (Monday-Friday): No class -- Spring Break
4/26 (Wednesday): Last class (project reports due)
5/1 (Monday): Final exam (10:30 am-12:30 pm)

Evaluation and Final Grades:

Grading: Homework 25%, Midterm 25%, Final 25%, Project 25%.
The 4720 and 6720 sections will be graded separately. In each exam and homework, the students enrolled for 6720 will have to answer more questions.

Note:

1. Before each class, lecture slides will be uploaded to Canvas. To not fall behind, students are strongly recommended to go through the slides and the corresponding material in the textbook on the day of the class. Video tutorials on how to use Canvas is available here: <https://community.canvaslms.com/t5/Video-Guide/tkb-p/videos#Students>.
2. All exams will be take-home. All assignments and exams will have to be submitted in Canvas.

Late submission:

No late submission will be entertained. An assignment not submitted within the due date and time will receive zero points.

Attendance policy:

Students are expected to attend all scheduled classes. If a student misses a class, it is the student's responsibility to obtain the material for the missed class from another student and catch up on the course content. Students missing more than two classes will be reported for low attendance.

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and *will not be tolerated*. Students involved in such activity will be reported for academic misconduct.