

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

Spring 2021

Instructor: Bonny Banerjee, Ph.D.

Contact Information:

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Office Hours: By appointment

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

Where: Engineering Science Bldg. Room 220

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:

1/20 (Wednesday): First class
3/5 (Friday): Midterm exam
3/8 (Monday): No class -- Wellness Break
4/9 (Friday): No class -- Wellness Break
4/26 (Monday): Last class (project reports due)
5/3 (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.

Mode of instruction due to COVID-19:

We will follow the University of Memphis guidelines. For the first two weeks of the semester (till 1/29), the course will be remote using eCourseware. Please see below for relevant information.

Lectures: Lectures will be in synchronous mode using eCourseware's Virtual Classroom. All students are expected to attend the class. Powerpoint lecture slides will be uploaded to eCourseware. Each Powerpoint file will contain about 8-12 slides. You can download and view the slides at any time. However, to not fall behind, you are strongly recommended to go through the slides and the corresponding material in the textbook on the day of the class.

Office hours: I will be available to answer questions during the designated class time (MWF 11:30 am-12:25 pm) via eCourseware's Virtual Classroom, and also via email. If you want a one-to-one meeting, email me, and we can arrange a Zoom session.

Exams: All exams will be take home. All assignments and exams will have to be submitted in eCourseware Dropbox.

Video tutorials on how to use eCourseware is available here:

https://rise.articulate.com/share/nPPqTGv3ITVv2ekOMJJ369u5KcMxTeD8#/%3f_k%3dzdzheng.