

Syllabus for CSE 3521 Fall 2018

Time & Location: Tuesday and Thursday, 9:35 AM to 10:55 AM in Baker Systems 140

Instructor: Peter Plantinga – Dreese Labs 580 – plantinga.1@osu.edu

Office Hours: Wednesday 12:30PM to 2:00PM, Friday 11:30AM to 1:00PM or by appointment

Grader: Libin Zhu – Caldwell 418 – zhu.2300@osu.edu

Office Hours: Tuesday 3:30 to 5:30 PM

Course Overview: This course is designed to be an introduction to concepts and techniques relevant to the field of artificial intelligence, with a focus on machine reasoning and machine learning. As a class, we will make an effort to understand the nature of intelligence, in order to communicate effectively about it with others.

Textbook: The suggested text is “Artificial Intelligence: A Modern Approach” by Russell and Norvig but this text is not required. All course material will be on Carmen (<http://carmen.osu.edu>), Piazza (<http://piazza.com>), and my personal website (<http://massey-plantinga.com/pedagogy/CSE3521>).

Grading:

Participation	Homeworks	Projects	Midterm exam	Final exam
5%	25%	25%	20%	25%

Participation: I will call roll at the beginning of every class. This does not determine your participation score, but in the absence of contributions in class or office hours, I will rely heavily on attendance. Perfect attendance gets 4% of participation. Occasional excused absence can still earn 5% with in-class contributions or office hours appearances.

Assignments: These are designed to take a few hours. If you are struggling, seek help through office hours or by appointment. All assignments will be turned in via Carmen. Late policy allows for 3 days late with no penalty, spent as you chose. After these are used, I'll deduct 10% per day. Unspent days are worth a small amount of extra credit.

Exams: Midterm will be Thursday, October 4 and final exam will be Friday, December 7 at 8:00am

Academic Misconduct: To fully understand the university's policy on academic misconduct, you can read the relevant material at <https://oaa.osu.edu/academic-integrity-and-misconduct>. As a rule of thumb, feel free to discuss assignments at a high level with others in the class or online, but work out the details yourself. I am required to report suspected violations to COAM.

Disability: I will require some accomodation from the class due to my own disability (hearing loss) so please feel free to request accomodation from me.

Course Schedule:

Prelude: What is AI? (Week 1)

reasoning and learning, public perception of AI

Homework 0: AI in the news - Aug 30

1: Automated Reasoning (Weeks 2-4)

search, game playing, logic, knowledge bases

Project 1: Pacman search - Sept 7

Homework 1: Logic - Sept 14

2: Probabilistic Reasoning (Weeks 5-7)

probability, bayesian modeling, naive bayes, regularization, markov chains

Project 2: Pacman Minimax - Sept 21

Homework 2: Probability - Sept 28

Oct. 4 Midterm exam

3: Reinforcement Learning (Weeks 8-9)

Markov decision processes, value iteration, policy iteration, Q-learning

Homework 3: Markov decision processes - Oct 10

Project 3: Pacman Reinforcement - Oct 19

4: Supervised Learning (Weeks 9-10)

classification, regression, optimization, stochastic gradient descent

Homework 4: Naive bayes + smoothing - Oct 26

Project 4: Linear and Logistic regression - Nov 2

5: Unsupervised Learning (Weeks 11-12)

clustering, expectation maximization

Homework 5: K-means clustering - Nov 9

Project 5: expectation maximization - Nov 16

6: Connectionist Learning (Week 13)

perceptron, backprop, deep learning

Project 6: PyTorch tutorial - Nov 30

Postlude: Applications of AI (Week 14)

speech, NLP, vision