College of Science · Computer Science

Introduction to Artificial Intelligence Section 03

CS 156

Spring 2023 3 Unit(s) 01/25/2023 to 05/15/2023 Modified 01/24/2023

Contact Information

Instructor: Rula Khayrallah

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Office Hours

Tuesday, 12:15 PM to 1:15 PM, online via Zoom

Wednesday, 4:00 PM to 5:00 PM, online via Zoom

Course Description and Requisites

Basic concepts and techniques of artificial intelligence: problem solving, search, deduction, intelligent agents, knowledge representation. Topics chosen from logic programming, game playing, planning, machine learning, natural language, neural nets, robotics.

Prerequisite(s): CS 146 (with a grade of C- or better); Computer Science, Software Engineering, or Data Science majors only, or instructor consent.

Letter Graded

Classroom Protocols

Regular attendance is an integral part of the learning process. Please arrive to class on time and make sure your cell phones are silent during the lecture.

Class time will be spent in interactive lecture. You are required to bring your wireless laptop to class. Your laptop must remain closed except for designated activities.

We'll use iClicker to gather your feedback and check understanding during the lecture. iClicker helps me understand what you know, gives everyone a chance to participate, and allows you to review the material after class. You must be in the classroom to participate in the iClicker activity.

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Materials

Artificial Intelligence: A Modern Approach

Author: Stuart Russell and Peter Norvig
Publisher: Pearson
Edition: 4th
ISBN: 978-0134610993
Optional

Software

Python 3
PyCharm Professional or Community Edition - recommended IDE

Course Requirements and Assignments

Homework

Homework assignments will be posted and submitted on Canvas. For full credit, they must be submitted by the posted due date and time. A detailed grading rubric is provided for all programming assignments. Please make sure you read and follow the grading rubric to ensure full credit.

Some assignments will be individual work. Others will be team assignments. I will make it clear whether the assignment is an individual assignment or a team assignment.

All work submitted on individual assignments must be your own. You may not share or copy code or answers from fellow students or from the web. Infractions will be detected and will lead to an automatic 0. If someone else copies your work, with or without your permission, you will be held responsible.

For team assignments, teams will consist of two students. The work must be done by both team members and both team members will receive the same grade. Teams may not share or copy code from other teams or from the web. Both team members will receive a zero if that happens regardless of who copied or shared the work. Both team members will also be reported to the Student Conduct and Ethical Development office.

Questions of the Week

We will have a single question every week to check your understanding of the previous week's material. I will count the 10 best scores out of the 12 total questions in the semester. You must be in the classroom and must use the LockDown browser to access and answer the question on Canvas. Missed questions cannot be made up.

Class Participation

You are expected to attend all class meetings as you are responsible for all the material discussed. Since active participation is essential to ensure maximum benefit, we'll use iClicker to give everyone a chance to participate. The iClicker participation points may be used to give your final grade in the course a slight boost.

Midterm Exam

The midterm exam will take place in the classroom during class time on March 16.

Final Exam

The final exam is scheduled according to the SJSU Final Exam Schedule, on Tuesday, May 23, 9:45 AM-12:00 PM.

Grading Information

The final grade in the course will be calculated based on the homework assignments, questions of the week, midterm and final exam.

The iClicker points may be used to give your final grade a slight boost. Students with the highest iClicker scores will get up to 1 bonus point. Students who violate the academic integrity policy are not eligible.

No extra credit options will be given.

Late Work

Late assignments will be accepted with a 1-point penalty for each day or partial day late. Late days include weekend days. For example, an assignment due on Tuesday by 5 PM will incur a penalty of 1 point if submitted at 8 AM on Wednesday. Everyone gets two free 'late days' for the semester. No submissions will be accepted more than 2 days late.

Academic Dishonesty

Students who are suspected of cheating will be referred to the Student Conduct and Ethical Development office and depending on the severity of the conduct, will receive a zero on the assignment or a grade of F in the course. Grade Forgiveness does not apply to courses for which the original grade was the result of a finding of academic dishonesty.

Criteria

Type	Weight	Topic	Notes
Homework Assignments	30%		
Questions of the Week	10%		
Midterm	30%		
Final Exam	30%		

Breakdown

Grade	Range	Notes
A plus	98 to 100%	
A	93 to 97%	
A minus	90 to 92%	
B plus	87 to 89%	
B	83 to 86%	
B minus	80 to 82%	
C plus	77 to 79%	
C	73 to 76%	
C minus	70 to 72%	
D	60 to 69%	
F	below 60%	

University Policies

Per University Policy S16-9 (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

When	Topic	Notes
Week 1: Jan 26	Course Logistics	Homework 1 due January 31
Week 2: Jan 31, Feb 2	What is AI? Intelligent Agents	Readings AIMA: Chapters 1, 2 Homework 2 due Feb 6
Week 3: Feb 7, 9	Python Essentials, Problem Solving and Search	Q1 on February 7 Readings AIMA: Sections 3.1-3.3 Homework 3 due February 14
Week 4: Feb 14, 16	Uninformed Search, Informed Search (greedy, A*)	Q2 on February 14 Readings AIMA: Sections 3.4-3.5 Homework 4 due February 21
Week 5: Feb 21, 23	Heuristics, Local Search	Q3 on February 21 Readings AIMA: Sections 3.6, 4.1 Homework 5 due on Feb 28
Week 6: Feb 28, Mar 2	Constraint Satisfaction Problems	Q4 on February 28 Readings AIMA: Chapter 6 Homework 6 due on March 7
Week 7: March 7, 9	Adversarial Search	Q5 on March 7 Readings AIMA: Chapter 5 Homework 7 due on March 14
Week 8: March 14, 16	Review, Midterm	Q6 on March 14 Midterm on March 16
Week 9: Mar 21, 23	Logical Agents	Homework 8 due Apr 11 Readings AIMA: Chapter 7, 8, Section 9.5
Week 10	Spring Recess - No Classes	
Week 11: Apr 4, 6	Automated Planning	Q7 on Apr 4 Readings AIMA: Chapter 11
Week 12: Apr 11, 13	Uncertainty, Bayes Nets	Q8 on Apr 11 Readings AIMA: Chapter 12, Sections 13.1-13.3, 14.1-14.3 Homework 9 due Apr 20
Week 13: Apr 18, 20	Machine Learning, Naive Bayes	Q9 on April 18 Readings AIMA: Sections 19.1-19.2, 20.1-20.2

When	Topic	Notes
Week 14: Apr 25, 27	Perceptron, Neural Nets, Nearest Neighbor	Q10 on April 25 Readings AIMA: Sections 21.1-21.2, 19.7 Homework 10 due May 4
Week 15: May 2, 4	Unsupervised Learning, The Ethics of AI	Q11 on May 2 Readings AIMA: Chapter 27
Week 16: May 9, 11	Applications	Q12 on May 9 Final Review on May 11
Final Exam	May 19 2:45-5:00PM	