

# Introduction to Artificial Intelligence Section 01

## CS 156

Fall 2023 3 Unit(s) 08/21/2023 to 12/06/2023 Modified 08/03/2023

### Contact Information

#### Instructor: Rula Khayrallah

Email: [Rula.Khayrallah@sjsu.edu](mailto:Rula.Khayrallah@sjsu.edu)

Office: MH 218

Phone: (408) 924-5153

#### 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 13 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 October 12.

### Final Exam

The final exam is scheduled according to the SJSU Final Exam Schedule, on Wednesday, December 13, 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 \(PDF\)](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<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 the [Syllabus Information](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>) web page. Make sure to visit this page to review and be aware of these university policies and resources.

# Course Schedule

When	Topic	Notes
Week 1: Aug 22, 24	Course Logistics, What is AI?	Readings AIMA: Chapter 1 Form a team by Aug 25 Homework 1 due Sep 1
Week 2: Aug 29, 31	Intelligent Agents	Readings AIMA: Chapter 2
Week 3: Sep 5, 7	Python Essentials, Problem Solving and Search	Q1 on Sep 5 Readings AIMA: Sections 3.1-3.3 Homework 2 due Sep 11
Week 4: Sep 12, 14	Uninformed Search, Informed Search (greedy, A*)	Q2 on Sep 12 Readings AIMA: Sections 3.4-3.5 Homework 3 due Sep 19
Week 5: Sep 19, 21	Heuristics, Local Search	Q3 on Sep 19 Readings AIMA: Sections 3.6, 4.1 Homework 4 due on Sep 26
Week 6: Sep 26, 28	Constraint Satisfaction Problems	Q4 on Sep 26 Readings AIMA: Chapter 6 Homework 5 due on Oct 3
Week 7: Oct 3, 5	Adversarial Search	Q5 on Oct 3 Readings AIMA: Chapter 5 Homework 6 due on Oct 10
Week 8: Oct 10, 12	Review, Midterm	Q6 on Oct 10 Midterm on Oct 12
Week 9: Oct 17, 19	Logical Agents	Homework 7 due Oct 31 Readings AIMA: Chapter 7, 8, Section 9.5
Week 10: Oct 24, 26	Automated Planning	Q7 on Oct 24 Readings AIMA: Chapter 11
Week 11: Oct 31, Nov 2	Uncertainty, Bayes Nets	Q8 on Oct 31 Readings AIMA: Chapter 12, Sections 13.1-13.3, 14.1-14.3 Homework 8 due Nov 7
Week 12: Nov 7, 9	Machine Learning, Naive Bayes	Q9 on Nov 7 Readings AIMA: Sections 19.1-19.2, 20.1-20.2

When	Topic	Notes
Week 13: Nov 14, 16	Perceptron, Neural Nets, Nearest Neighbor	Q10 on Nov 14 Readings AIMA: Sections 21.1-21.2, 19.7 Homework 9 due Nov 30
Week 14: Nov 21	Unsupervised Learning	Q11 on Nov 21
Week 15: Nov 28, 30	Applications, The Ethics of AI	Q12 on Nov 28 Readings AIMA: Chapter 27
Week 16: Dec 5	Final Review	Q13 on Dec 5
Final Exam	Dec 13 9:45AM-12:00PM	