Introduction to Artificial Intelligence Section 03
CS 156

Fall 2023  3 Unit(s)  08/21/2023 to 12/06/2023  Modified 08/22/2023

Class Day/Time: TuTh 9:00AM - 10:15AM
Location: Sweeney Hall 435

Contact Information

Instructor: Dr. Sayma Akther
Email: sayma_akther@sjsu.edu
Office: MH 213
Phone: (408) 924-2511

Office Hours
Wednesday, 2:00 PM to 4:00 PM, MH 213

If the office hours don't work for you, don't worry. Feel free to email me, and we can schedule a Zoom meeting at a more convenient time for you.

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

To ensure a positive and productive learning environment, here are some important points to keep in mind:

Materials and Updates

- Regularly check MySJSU and your email for updates.

Recording and Privacy

- Recording any class activities, including lectures, is only allowed with the instructor's permission.
- You are not permitted to share or distribute class recordings.
- Instructor-generated materials (like syllabi, lectures, and presentations) are protected by copyright.
- Violation may result in referral to Student Conduct and Ethical Development office.
Respectful Behavior

- Treat your fellow classmates with respect and kindness.
- Avoid interruptive or disruptive behavior during class.
- Limit electronic device usage to relevant learning activities.
- The full code of conduct is available on Canvas.

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 Learning Outcomes (CLOs)

After studying "Introduction to Artificial Intelligence," a student should be able to demonstrate the following Course Learning Outcomes:

1. **Understand AI Concepts**: Gain a solid understanding of the fundamental concepts, principles, and methodologies related to Artificial Intelligence.

2. **Problem Solving**: Apply AI techniques to analyze and solve complex problems by designing algorithms and models.

3. **Machine Learning**: Comprehend the basics of machine learning, including supervised and unsupervised learning, and be able to apply them to real-world scenarios.

4. **Knowledge Representation**: Learn techniques for representing knowledge and reasoning, including logical frameworks and semantic networks.

5. **Natural Language Processing**: Grasp the fundamentals of natural language processing and its applications in tasks like sentiment analysis and language generation.

6. **Search and Optimization**: Develop skills in designing search algorithms and optimization techniques to find solutions efficiently.

7. **Ethical Considerations**: Understand the ethical implications and societal impacts of AI technologies, considering biases, privacy, and responsible AI development.

8. **AI Applications**: Explore various practical applications of AI, such as robotics, expert systems, and computer vision.

9. **Critical Thinking**: Develop the ability to critically evaluate AI solutions, algorithms, and their limitations.

10. **Teamwork and Communication**: Collaborate effectively with peers to solve AI-related problems and communicate findings clearly through presentations and reports.

These Course Learning Outcomes reflect the knowledge and skills a student is expected to gain from studying Introduction to Artificial Intelligence.

Course Materials

**Artificial Intelligence: A Modern Approach**

- **Author**: Stuart J. Russell and Peter Norvig
- **Publisher**: Pearson
- **Edition**: 4th Edition
- **ISBN**: 0-13-461099-7

Technology Requirements

**Laptop**: This course requires the student to have a personal computer with internet access for all classes and quizzes.
Course Requirements and Assignments

Meeting the Course Requirements and completing the Assignments are essential for successfully progressing in the course.

Quizzes (10%)
These quizzes will be explained in the class session and are expected to be completed by the conclusion of the lecture day. If additional time is required to finish the quizzes outside of class, they should be submitted on Canvas before midnight of the following day. These quizzes serve the purpose of motivating you to study and review the concepts and materials covered in the lecture.

Homework (30%)
Expected to be submitted by midnight as indicated in the schedule.

Midterm Exams (20%)
There will be one in-class exams.

Final Project (40%)
The final project must be taken on the scheduled day.

Grading Information

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<thead>
<tr>
<th>Grade</th>
<th>Range (%)</th>
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<td>97 and above</td>
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Library Liaison

Yuqi He, Ph.D., MLIS
Engineering & Data Services Librarian
University Library
San Jose State University
(408) 808-2044
University Policies

Per University Policy 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) web page. Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

Please be aware that this schedule is subject to modifications with appropriate prior notification. Any alterations will be communicated during class and published on the Canvas course platform.

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Homework</th>
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<tbody>
<tr>
<td>1</td>
<td>8/22</td>
<td>Introduction</td>
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<tr>
<td></td>
<td>8/24</td>
<td>What is AI?</td>
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<td>2</td>
<td>8/29</td>
<td>Python 1</td>
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<td>Python 2</td>
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<td>Search 1</td>
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<td>Search 2</td>
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<td>Search 3</td>
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<td>Search 4</td>
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<td>Games 2</td>
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<td>6</td>
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<td>Constraint Satisfaction Problems 1</td>
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<td>Constraint Satisfaction Problems 2</td>
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<td>Markov Networks and Bayesian Networks 1</td>
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<td>Final Project Formulation</td>
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<td>11/21</td>
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<td>Robotics</td>
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<td>Time for working on Project</td>
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<td>17</td>
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<td>Final Project Presentations</td>
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