

Artificial Intelligence

Course Overview

The course Artificial Intelligence is a single-semester course that explains the evolution of Artificial Intelligence and its scope in the future. This course also describes how Artificial Intelligence is used in fields such as games, speech recognition, and computer vision. In this course, you will learn about different types of intelligent agents and their environments. You will also learn how to formulate problems and represent knowledge. The course Artificial Intelligence also covers the concepts of machine learning, natural language processing, expert systems, and robots. You will also learn about the ethics and safety issues related to artificial intelligence.

Course Goals

By the end of this course, you will:

- Evaluate human tasks and use PEAS specifications to identify performance measures.
- Examine some of the challenges in creating and using artificial intelligence.
- Compare AI search strategies and judge which one is better for the task.
- Design a knowledge representation around a real-life task, with an understanding of AI capabilities.
- Assess the advantages and strengths of artificial intelligence for real world tasks and situations.

General Skills

To participate in this course, you should be able to do the following:

- Complete basic operations with word-processing software such as Microsoft Word or Google Docs.
- Perform online research using various search engines and library databases.
- Communicate through email and discussion boards.

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

Artificial Intelligence is a 0.5-credit course.

Course Materials

- notebook
- computer with an Internet connection and speakers or headphones
- Microsoft Word or equivalent

Course Components and Grading Rubric

The table gives a breakdown of the weight for each component in the course. Weight represents the percentage of the total score coming from each activity.

Course Components	Count	Weight
Module. <i>Each module in this course contains an interactive tutorial and an associated mastery test. Tutorials may include one or more Lesson Activities that constitute tasks associated with the tutorial. The module score comes from a student's score on the mastery test.</i>	12	30%
Discussion. <i>Online discussions allow for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Teachers can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Each unit in a course has one predefined discussion topic; teachers may add more discussion topics.</i>	5	25%
Course Activity. <i>Course Activities are similar to Unit Activities in scope but may be found at any point in the course, either to prepare the student for new learning or to act as a performance-based activity required for a learning objective. Like Unit Activities, Course Activities include simple rubrics, and sample answers are available for teachers. Course Activities are teacher graded.</i>	5	25%
End of Semester Test. <i>The end of semester test (EOS) appears at the end of the course. Students are delivered a few items from every tutorial in the course in order to assess the major course objectives.</i>	1	20%
Total	23	100%

*Teachers may manually adjust these weights if desired, per district grading requirements.

Course Pacing Guide

This course description and pacing guide is intended to help you stay on schedule with your work. Note that your course teacher may modify the schedule to meet the specific needs of your class.

Day	Activity/Objective	Type
1 day: 1	Syllabus and Plato Student Orientation <i>Review the Plato Student Orientation and Course Syllabus at the beginning of this course.</i>	Course Orientation
6 days: 2-7	History of Artificial Intelligence <i>Describe the evolution of artificial intelligence.</i>	Lesson
6 days: 8-13	Applications of Artificial Intelligence <i>Describe the use of artificial intelligence in various fields such as games, speech recognition, computer vision, expert systems, and natural language processing.</i>	Lesson
6 days: 14-19	Intelligent Agents <i>Identify the different types of artificial intelligence agents and environments.</i>	Lesson
2 days: 20-21	Course Activity 1 <i>Identify the PEAS specification for the environment in various scenarios.</i>	Course Activity
1 day: 22	Course Discussion 1	Course Discussion
1 day: 23	Game 1–Para Jumble	Game
6 days: 24-29	Problem Solving by Searching <i>Explain how to solve problems using various search algorithms.</i>	Lesson
6 days: 30-35	Knowledge Representation <i>Explain how to represent knowledge in artificial intelligence.</i>	Lesson
1 day: 36	Game 2–Thwack-a-Mole	Game
6 days: 37-42	Reasoning <i>Describe the role of reasoning in the implementation of artificial intelligence.</i>	Lesson
2 days: 43-44	Course Activity 2 <i>Describe knowledge representation and reasoning when considering a real-life task, considering AI components and functions. Discuss the advantages of A* search over greedy search.</i>	Course Activity

Day	Activity/Objective	Type
1 day: 45	Course Discussion 2	Course Discussion
6 days: 46-51	Machine Learning <i>Describe the basic concepts of machine learning.</i>	Lesson
1 day: 52	Game 3–Para Jumble	Game
5 days: 53-57	Natural Language Processing <i>Explain how intelligent systems process natural language such as English.</i>	Lesson
2 days: 58-59	Course Activity 3 <i>Identify the possible issues related to developing voice recognition.</i>	Course Activity
1 days: 60	Course Discussion 3	Course Discussion
5 days: 61-65	Expert Systems <i>Describe the characteristics, capabilities, and components of expert systems.</i>	Lesson
1 day: 66	Game 4–Thwack-a-Mole	Game
5 days: 67-71	Computer Vision <i>Explain how computers can understand images and videos.</i>	Lesson
5 days: 72-76	Robotics <i>Describe the functioning of a robot and the advantages of using robots.</i>	Lesson
2 days: 77-78	Course Activity 4 <i>Identify the components of an industrial robot. Describe how computer vision will benefit industrial robots.</i>	Course Activity
1 day: 79	Course Discussion 4	Course Discussion

Day	Activity/Objective	Type
5 days: 80-84	Ethics and Safety <i>Describe the ethics and safety issues related to artificial intelligence.</i>	Lesson
2 days: 85-86	Course Activity 5	Course Activity
2 days: 87-88	Course Discussion 5 <i>Identify the possible issues related to developing voice recognition. Identify the components of an industrial robot. Describe how computer vision will benefit industrial robots.</i>	Course Discussion
1 day: 89	Game 5–Space Jumble	Game
1 day: 90	End of Semester Test	Assessment

Course Map

You will achieve course level objectives by completing each lesson’s instruction, assignments, and assessments. For a detailed look at how the materials meet these objectives, review the [course map](#).