

# Lassen Community College Course Outline

CIS 91 Introduction to Artificial Intelligence

3.0 Units

## I. Catalog Description

This course is an introduction to the field of Artificial Intelligence (AI), which attempts to understand and build intelligent systems. Topics include intelligent agents, search, game playing, logic, knowledge representation and reasoning, and uncertainty. We will also briefly cover the history of AI and philosophical and social implications.

### Diversity Statement

Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

### Additional Course Information

*Transfer Status:*

NT

*Total Number of Hours by Instructional Method:*

- 51 Hours Lecture, 102 Out of Class Hours, 153 Total Hours of Instruction

*Scheduled:*

- Every Spring

## II. Coding Information

Repeatability: Not repeatable, take one time

Grading Option: Graded only

Credit Type: Credit - Degree Applicable/Credit

TOP Code: 0799.00

## III. Course Objectives

### A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Demonstrate fundamental understanding of the history of artificial intelligence(AI) and its foundations
2. Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
3. Demonstrate awareness and a fundamental understanding of various applications of AI techniques.

### B. Course Objectives

Upon completion of this course the student will be able to:

1. Gain a historical perspective of AI and its foundations.
2. Become familiar with basic principles of AI toward problem solving, inference, perception, knowledge representation, and learning.
3. Investigate applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
4. Experience AI development tools such as an 'AI language', expert system shell, and/or data mining tool.
5. Experiment with a machine learning model for simulation and analysis.
6. Explore the current scope, potential, limitations, and implications of intelligent systems.

## IV. Course Content

### A. Outline of Topics

1. History and foundations of AI
2. Problem solving and intelligent agents
3. Problem solving and search (blind, informed, constraint satisfaction, adversarial)
4. Knowledge representation and reasoning in deterministic environments (logic, semantic networks, frames)
5. Knowledge representation and reasoning in probabilistic environments (Bayesian networks)  
Introduction to information retrieval and machine learning (classification and clustering)
6. Introduction to reinforcement learning

## V. Assignments

### A. Appropriate Readings

1. List (Readings other than textbook i.e. Journals, Manuals, Reference books, Websites)

### B. Writing Assignments

1. List

### C. Expected Outside Assignments

1. Include statement for all lecture classes "Students will be required to complete two hours of outside-of-class homework for each hour of lecture."

### D. Specific Assignments that Demonstrate Critical Thinking

1. List specific assignments.

## VI. Methods of Evaluation

List general evaluation methods (i.e., mixed format exams, participation, written essays, oral and listening exams)

***Only include the appropriate evaluation modalities***

### **Traditional Evaluation**

Term paper (topic choice, thesis statement, outline, bibliography, rough draft, final draft), homework, classroom discussion, essay, journals, lab demonstrations and activities, multiple choice quizzes, and participation.

### **Hybrid Evaluation**

Quizzes and exams could be administered in person and/ or online. Students will

be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students.

**Online Evaluation**

A variety of methods will be used, such as: research papers, asynchronous and synchronous (chat/forum) discussions, online quizzes and exams, posting to online website and email communications using the districts approved learning management system.

## VII. Methods of Delivery

Check those delivery methods for which this course has been separately approved by the Curriculum/Academic Standards Committee.

- Traditional Classroom Delivery
- Correspondence Delivery
- Hybrid Delivery
- Online Delivery

***Only include the appropriate delivery modalities***

**Traditional Classroom Delivery**

Lecture, discussion, audio/visual aids, demonstration, group exercises, guest speakers, lab, individualized programs and other as needed.

**Hybrid Delivery**

A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 17 hours, or 1/3 of the instruction hours, will be taught face-to face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction could consist of exercises/assignments, lectures, visual aids, practice exercises, exams and quizzes. Online delivery could consist of exercises/assignments, lecture posts, discussions, exams and quizzes, adding extra resources and other media sources as appropriate.

**Online Delivery**

A variety of methods will be used, such as: research papers, asynchronous and synchronous (chat/forum) discussions, online quizzes and exams, posting to online website and email communications using the districts approved learning management system.

## VIII. Representative Texts and Supplies

Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, Prentice Hall, Fourth Edition, 2020

## IX. Course Status

1. Current Status: Pending
2. Original Approval Date:
3. Course Originator: Melinda Duerksen
4. Board Approval Date: 11/12/2024
5. Chancellor's Office Approval Date:
6. Revised By:
7. Curriculum/Academic Standards Committee Revision Date: 10/15/2024