CS480/580 Introduction to Artificial Intelligence

Fall 2025

Instructor:

Dr. Sumaya Sanober

Class Schedule:

CS480/580: Monday and Wednesday 9:30AM - 10:45AM, DRGS 2114/Zoom

The class Zoom links can be found under the **Course Collaboration Tool** on Canvas.

The lecture recordings will be available under the **Media Gallery** on Canvas after each class.

Office Hours:

Office: 1103B Dragas Hall
Office Phone: 757-683-7736
Office Hours: Monday and Wednesday: 12:00PM-2:00PM

                            Or by appointment

E-Mail: ssanober@odu.edu

You may also see me at other times or in person by making an appointment. You may send me an email at ssanober@odu.edu (email is preferred means of communication).

Teaching Assistant:

Name: Xiangrui Xu

Office Location: TBA

Office Hours: Monday 8am-9am

Email Address: xxu002@odu.edu

Catalog Description:

Introduction to concepts, principles, challenges, and research in major areas of AI. Areas of discussion include natural language and vision processing, machine learning, machine logic and reasoning, robotics, expert and mundane systems.

Credits: 3(3-0)

Prerequisites: A grade of C or better in CS 361.

Textbook and Outline of Course Material:

The course content will be based on the following textbook:

Stuart Russell, Peter Norvig. Artificial Intelligence: A Modern Approach.
http://aima.cs.berkeley.edu

The topics covered in CS480/580 are:

1. Problem Solving Agents
2. Intelligent Search
3. Knowledge Representation
4. Machine Learning

Grade Evaluation:

Your grade will be based on a total of 100 points with the following distribution:

- Four homework assignments: 40 points
- Midterm: 30 points
- Final examination: 30 points

The assignments will be submitted via the Canvas system.

The exams will be online via the Canvas system. Exams will be open-book and notes.

The final grade will be based on the following distribution.
A 100-92, A- 91-90, B+ 89-87, B 86-84, B- 83-80, C+ 79-77, C 76-74, C- 73-70, D+ 69-62, D 61-56, F 55-0

Academic Honesty and Honor Code:
Everything turned in for grading in this course must be your own work. Use of ChatGPT and such tools may be used to get some ideas, but the work submitted must be students' own. During the exams, using ChatGPT is prohibited. The instructor reserves the right to question a student orally or in writing and to use his evaluation of the student's understanding of the assignment and of the submitted solution as evidence of cheating. Violations will be reported to the Honor Council for consideration for punitive action. All students are expected to abide by the ODU Honor Code.

Accommodations:
Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.

List of Modules

• Introduction (Textbook chapter 1 (1.1 - 1.4))

- What is AI?
- Foundations of AI

- History of AI
- State of the Art

• Intelligent Agents (Textbook chapter 2 (2.1 - 2.4))

- Agents and Environments
- The Concept of Rationality
- Nature of Environments
- Structure of Agents

• Solving Problems by Searching (Textbook chapters 3, 4, and 5 (3.1 - 3.5, 4.1-4.2, 5.1-5.3))

- Problem Solving Agents
- Uninformed Search
- Informed Search
- Local Search
- Adversarial Search

• Constraint Satisfaction Problems (CSPs) (Textbook chapter 6 (6.1, 6.3))

- Defining CSPs
- Backtracking Search for CSPs

• Logical Agents (Textbook chapter 7 (7.1, 7.3 - 7.5))

- Knowledge-Based Agents
- Logic
- Propositional Logic

• First Order Logic (FOL) (Textbook chapter 8 (8.1 - 8.2))

- Syntax and Semantics of FOL
- Using FOL

• Learning (Textbook chapter 18, 21 (18.1 - 18.3, 18.6 - 18.7, 18.9))

- Forms of Learning
- Decision Trees
- Linear Regression
- Support Vector Machines
- Artificial Neural Networks