

Syllabus

CS 480/580 | Introduction to Artificial Intelligence | Fall 2026

INSTRUCTOR Susan Zehra	E-MAIL szechra@odu.edu
CLASS Tuesdays & Thursdays, 9:30 a.m. – 10:45 a.m.	LOCATION ECSB 2120
ZOOM OFFICE HOURS Tuesdays & Thursdays, 2:00 p.m. – 3:00 p.m.	ALSO AVAILABLE By appointment
ZOOM odu.zoom.us/j/91696336483	COURSE SITE Canvas

Course Overview

Catalog Description. Laboratory work required. Introduction to concepts, principles, challenges, and research in major areas of artificial intelligence. Areas of discussion include natural language and vision processing, machine learning, machine logic and reasoning, robotics, expert and mundane systems.

Prerequisite. A grade of C or better in any one of: CS 250, CS 251, CS 253, CS 260, CS 261, CS 263, or DASC 255.

Textbook. Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach*. [AIMA course resources](#)

Major Course Themes

01 Problem-Solving Agents How intelligent agents formulate goals and solve problems.	02 Intelligent Search Uninformed, informed, local, adversarial, and constraint-based search.
03 Knowledge & Reasoning Knowledge representation, logic, propositional logic, and first-order logic.	04 Machine Learning Decision trees, regression, support vector machines, and neural networks.

Assessment & Grading

All assignments will be submitted through Canvas. Exams will be administered online through Canvas unless the instructor announces otherwise. Course grades are based on the weighted components below.

Assessment	Weight
Five Homework Assignments	25%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Course Project	15%
Hands-on In-Class Labs (completion grade)	15%

Extra Credit Opportunities

Before each exam, a review session and practice exam may be offered. Completing the designated practice activity can provide extra-credit opportunities as announced in Canvas.

Graduate-Level Expectations for CS 580

CS 580 students will have more rigorous and additional requirements on the final course project. The CS 580 project will also require an additional detailed written report that demonstrates deeper analysis, technical justification, and graduate-level understanding.

Final Grade Scale

Grade	Range	Grade	Range
A	94–100	A-	90–93
B+	87–89	B	84–86
B-	80–83	C+	77–79
C	74–76	C-	70–73
D+	62–69	D	56–61
F	0–55		

CS 580 minimum passing requirement: Students enrolled in CS 580 must earn a final course average of at least 74% (C). A final average below 74% will result in a grade of F.

Course Expectations

Attendance & Participation

Regular attendance and active participation are expected. Students are responsible for all material, announcements, in-class activities, and assignments presented during class. Because hands-on labs are part of the course grade, missed labs may affect the final course grade. Students should contact the instructor as soon as possible when an absence is unavoidable.

Generative AI & Academic Integrity

Generative AI tools (for example, ChatGPT, Claude, Gemini, or GitHub Copilot) may be used for brainstorming, conceptual clarification, study support, or other uses specifically permitted by the instructor. Students may not submit AI-generated answers, code, analysis, or written work as their own. Any permitted AI assistance must still result in work that the student understands and can explain.

Use of generative AI during exams is prohibited unless the instructor explicitly states otherwise. The instructor may ask a student to explain submitted work orally or in writing when authorship or understanding is in question. Suspected violations of academic integrity will be handled in accordance with the ODU Honor Code and applicable university procedures.

Accommodations

Students who have approved accommodations through the Office of Educational Accessibility should provide their Accommodation Letter to the instructor as early as possible each semester. Approved accommodations begin after the instructor receives the official letter and should be arranged in a timely manner.

AI Course Experience

This course combines foundational AI theory with hands-on problem solving. Students will work with algorithms, formal reasoning, learning methods, and practical AI implementations through homework, labs, examinations, and a final project.

SEARCH Reason about paths, heuristics, games, and constraints.	REASON Represent knowledge and draw logical conclusions.	LEARN Build and evaluate models from data.
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Final Course Project

The final course project is intended to integrate AI concepts from the semester into a substantive implementation, analysis, or applied investigation. Project instructions, milestones, deliverables, and evaluation criteria will be provided through Canvas.

CS 480 students will complete the project requirements defined for the undergraduate section.

CS 580 students will complete more rigorous project requirements and submit an additional detailed written report with deeper technical analysis and justification.

Course Topic Roadmap

1 Introduction to AI <i>Chapter 1 (Sections 1.1–1.4)</i> • What is AI? • Foundations of AI • History of AI • State of the Art	2 Intelligent Agents <i>Chapter 2 (Sections 2.1–2.4)</i> • Agents and Environments • The Concept of Rationality • Nature of Environments • Structure of Agents
3 Solving Problems by Searching <i>Chapters 3, 4, and 5 (Sections 3.1–3.5, 4.1–4.2, 5.1–5.3)</i> • Problem-Solving Agents • Uninformed Search • Informed Search • Local Search • Adversarial Search	4 Constraint Satisfaction Problems (CSPs) <i>Chapter 6 (Sections 6.1, 6.3)</i> • Defining CSPs • Backtracking Search for CSPs
5 Logical Agents & First-Order Logic <i>Chapters 7 and 8 (Sections 7.1, 7.3–7.5, 8.1–8.2)</i> • Knowledge-Based Agents • Logic • Propositional Logic • First-Order Logic (FOL) • Syntax and Semantics of FOL • Using FOL	6 Machine Learning <i>Chapters 18 and 21 (Sections 18.1–18.3, 18.6–18.7, 18.9)</i> • Forms of Learning • Decision Trees • Linear Regression • Support Vector Machines • Artificial Neural Networks

Syllabus Note

This syllabus provides the planned structure of the course. The instructor may make reasonable changes to topics, assignments, due dates, or course procedures when necessary. Any changes will be communicated in class and/or through Canvas.

University Policies

Academic Integrity

Old Dominion University is committed to students' personal and academic success. In order to achieve this vision, students, faculty, and staff work together to create an environment that provides the best opportunity for academic inquiry and learning. All students must be honest and forthright in their academic studies. Your work in this course and classroom behavior must align with the expectations outlined in the Code of Student Conduct, which can be found at www.odu.edu/oscai. The following behaviors along with classroom disruptions violate this policy, corrupt the educational process, and will not be tolerated.

- **Cheating:** Using unauthorized assistance, materials, study aids, or other information in any academic exercise.
- **Plagiarism:** Using someone else's language, ideas, or other original material without acknowledging its source in any academic exercise.
- **Fabrication:** Inventing, altering or falsifying any data, citation or information in any academic exercise.
- **Facilitation:** Helping another student commit, or attempt to commit, any Academic Integrity violation, or failure to report suspected Academic Integrity violations to a faculty member.

Academic dishonesty will be reported to the Office of Student Conduct & Academic Integrity and may result in sanctions up to and including expulsion from the University.

Plagiarism

No plagiarism will be tolerated under any circumstances. As faculty, I am bound to report any instances of plagiarism. All cases are heard before the honor council. If found guilty, the student automatically receives a failing grade in the course, and a notice is entered into the permanent record for a period of time.

College Class Conduct

The following standards are intended to define acceptable classroom behavior that preserves academic integrity and ensures that students have optimum environmental conditions for effective learning.

1. Students must turn off cell phones and pagers during class or have them set to vibrate mode.
2. Classes are expected to begin on time, and students will respect the time boundaries established by the professor. If classroom doors are locked, students may not knock or seek entrance in other ways.
3. Students should notify instructors in advance when a class will be missed. In the event of an emergency that causes a class to be missed, instructors must be notified as soon as possible.
4. Instructors may require that cell phones and other electronic devices be left on their desks during tests or examinations.
5. Students must not engage in extraneous conversations during classes. Such acts are considered to be violations of the Code of Student Conduct.
6. Students will activate their Old Dominion e-mail accounts and check them before each class. If the student chooses to have his/her messages forwarded to another account, it is the student's responsibility to take the necessary steps to have them forwarded.
7. Consumption of food and drink during class is prohibited, except when the professor has specifically approved of such acts.
8. Offensive language, gestures and the like are disrespectful and disruptive to the teaching-learning process.

Honor Code

The Old Dominion University Honor Code will be strictly enforced. By attending Old Dominion University, you have signed a pledge accepting the responsibility to abide by the following Honor Code found at Office of Student Conduct and Academic Integrity.

We, the students of Old Dominion University, aspire to be honest and forthright in our academic endeavors. Therefore, we will practice honesty and integrity and be guided by the tenets of the Monarch Creed. We will meet the challenge to be beyond reproach in our actions and our words. We will conduct ourselves in a manner that commands the dignity and respect that we also give to others. ODU Honor Code

This is an institutional policy approved by the Board of Visitors. The University Honor Code applies to all assignments.

Honor Pledge

I pledge to support the honor system of Old Dominion University. I will refrain from any form of academic dishonesty or deception, such as cheating or plagiarism. I am aware that as a member of the academic community, it is my responsibility to turn in all suspected violators of the honor system. I will report to Honor Council hearings if summoned. ODU Honor Pledge

By attending Old Dominion University you have accepted the responsibility to abide by this code. This is an institutional policy approved by the Board of Visitors. For more information, please visit [Policies and Student Responsibilities](#).

Educational Accessibility

In compliance with PL94-142 and more recent federal legislation affirming the rights of disabled individuals, provisions will be made for students with special needs on an individual basis. The student must be identified by the university and provide a letter from the Office of Educational Accessibility (OEA), located at 1021 Student Success Center. Any accommodations will be based upon written guidelines from the Office of Educational Accessibility (OEA). All students are expected to fulfill all course requirements.

Old Dominion University is committed to ensuring equal access to all qualified students with disabilities in accordance with the Americans with Disabilities Act. The Office of Educational Accessibility (OEA) is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you experience a disability which will impact your ability to access any aspect of my class, please present me with an accommodation letter from OEA so that we can work together to ensure that appropriate accommodations are available to you.
- If you feel that you will experience barriers to your ability to learn and/or testing in my class but do not have an accommodation letter, please consider scheduling an appointment with OEA to determine if academic accommodations are necessary.

The Office of Educational Accessibility is located at 1021 Student Success Center and their phone number is [\(757\)683-4655](tel:7576834655).

Additional information is available at the [OEA Website](#).

University Email & Electronic Messaging Systems Policies

Electronic messaging systems and communication services are provided by Old Dominion University for the purpose of enhancing productivity and maintaining effective communication.

Old Dominion University employees, students, employees of affiliated organizations, and guests, volunteers, and researchers who are provided official email accounts must activate and maintain regular access to these accounts. These accounts must be used to send and receive electronic communications related to official University business.

Failure to access the email account will not exempt individuals from their responsibility of being aware of and meeting requirements and responsibilities included in electronic communications.

Message content is the sole responsibility of the individual sending the message and users must adhere to [University Policy 3500, Use of Computing Resources](#), and [Information Technology Standard 09.1.0, Acceptable Use Standard](#). Users are also encouraged to practice generally accepted online etiquette.

Instructors retain the discretion of establishing class expectations for email and other electronic messaging communication as a part of the course requirements.

Alternative messaging services should be arranged in cases where users' access to information technology resources is limited or unavailable.

Incomplete

Documented illnesses, deaths in family, car accidents, or other traumatic occurrences call for flexibility and good judgment on the part of the student and instructor. These situations are rare and are handled individually. Should such a situation occur, students **MUST** contact [Student Outreach & Support](#). Email oducares@odu.edu or by phone [757-683-3442](tel:757-683-3442) to acquire the necessary documentation. An incomplete grade will only be given under the following circumstances

1. The student has completed ½ or more of the course requirements with a C or better
2. There is legitimate deficiency due to the illness or emergencies deemed acceptable to the instructor
3. There is not neglect on the student's part.

Withdrawal

A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the Registrar.

Student Acknowledgement

"I, _____, have completely read this syllabus and understand and agree to the course requirements".