

Artificial Intelligence

CS 465-001 | Fall 2020 | 3 Credit Hours

Lecture

Dr. Monica Anderson Herzog

Contact Information

UA Campus Directory:

- Dr. Monica Anderson Herzog (<https://www.ua.edu/directory/?i=anderson#listing>)

Online Office Hours – Tuesday 4–6pm, Friday 12pm–1:30pm (Zoom link posted in Blackboard)

Prerequisites

UA Course Catalog Prerequisites:

CS 300, CS 301 and ECE 383

Graduate Status or CS360/CS201

Course Description

Course Description and Credit Hours

The advanced study of topics under the umbrella of artificial intelligence including problem solving, knowledge representation, planning and machine learning.

Required Texts

Required Texts from UA Supply Store:

- ACCESS GRANTED DIGITAL MATERIALS / CS 465/565 ACCESS GRANTED PROGRAM (RUSSELL/ARTIFICIAL INTELLIGENCE) (**Required**)

You can opt out of the digital text and buy a hardcopy.

Course Objectives

In this course, we will explore several topics under the umbrella of artificial intelligence including problem solving, knowledge representation, planning and machine learning.

Student Learning Outcomes

- After completion of this course, students will be able to:
 - Select and implement an appropriate search algorithm to find a solution to a problem
 - Write an intelligent game player in an adversarial game
 - Represent a knowledge space using prepositional and first-order logic
 - Select and implement appropriate supervised learning problem
 - Understand the issues and challenges of dealing with uncertainty
 - Apply standard artificial intelligence algorithms to a research problem

Other Course Materials

Additional readings or materials will be provided or referenced in class

Outline of Topics

- Intelligent Agents
- Supervised Learning
- Unsupervised Learning
- Reinforcement learning
- Uncertain Knowledge and Reasoning
- Informed and Uninformed Search
- Adversarial Search
- Constraint Satisfaction
- Logic
- Planning
- Ethics

- Current Topics/Machine learning for Communicating, Perceiving and Acting

Exams and Assignments

Take home **assignments** (4)- Students will complete 4 take-home assignments. Each person should independently complete the assignment.

In-class presentations and presentation critiques (10%)

Class Project - Each student will turn in an individual semester project that includes an algorithm implementation, video presentation and an accompanying 6-8 page paper. Additional parameters for each deliverable will be given during the class.

The project will be completed in four parts:

- Project proposal (5%)
- Project draft (10%)
- Project presentation (10%)
- Final project paper (15%)

Grading Policy

40% Project, 10% in class presentation critiques 60% (4 @ 10%) Take home assignments

Policy on Missed Exams and Coursework

All assignments are to be turned in at the beginning of class in which they are due. Late assignments are not accepted. To that end, it is strongly suggested that all assignments are started early. If completing an assignment on time is a problem, please talk to me before the assignment is due.

Attendance Policy

This course will be part lecture and part seminar and will require class participation by each student. Regular attendance is expected (in-person or online). If you miss a class, it is your responsibility to get the announcements, any lecture materials/topics and make up missed work.

Class attendance is strongly encouraged but not required. Please note: Without prior approval, students may not record course content and/or post in such a way to be made available publicly or to anyone not enrolled in this course section. Public posting includes Chegg and similar online services. Prohibited sharing also includes assignments, exams and/or keys in addition to slides and other content. **Any student violated these rules may be referred to the Office of Student Conduct for disciplinary action.**

In addition, if a course session is recorded, students voices/likeness may be recorded. Please leave your camera off/do not use a profile picture if you do not wish your video to be recorded. Participation orally

may result in audio being recorded.

Students must display a green health check status (via the UA Healthcheck process) when entering class. It can be displayed via phone, laptop or printed.

Notification of Changes

The instructor will make every effort to follow the guidelines of this syllabus as listed; however, the instructor reserves the right to amend this document as the need arises. In such instances, the instructor will notify students via Blackboard and will endeavor to provide reasonable time for students to adjust to any changes.

**** Any changes to the syllabus, assignments, schedule or calendar will be announced via Blackboard**

Statement on Academic Misconduct

Students are expected to be familiar with and adhere to the official Academic Misconduct Policy (<https://catalog.ua.edu/undergraduate/about/academic-regulations/student-expectations/academic-misconduct-policy/>) provided in the Online Catalog.

Statement On Disability Accommodations

Contact the Office of Disability Services (ODS) (<https://catalog.ua.edu/undergraduate/about/support-programs/disability-services/>) as detailed in the Online Catalog.

Severe Weather Protocol

Please see the latest Severe Weather Guidelines (<https://ready.ua.edu/severe-weather-guidelines/>) in the Online Catalog.

Pregnant Student Accommodations

Title IX protects against discrimination related to pregnancy or parental status. If you are pregnant and will need accommodations for this class, please review the University's FAQs on the UAct website (<https://www.ua.edu/campuslife/uact/information/pregnancy>) .

Religious Observances

Under the Guidelines for Religious Holiday Observances, students should notify the instructor in writing or via email during the first two weeks of the semester of their intention to be absent from class for religious observance. The instructor will work to provide reasonable opportunity to complete academic responsibilities as long as that does not interfere with the academic integrity of the course. See full guidelines at Religious Holiday Observances Guidelines (<https://provost.ua.edu/oaa-guidelines-for-religious-holidays-observance>) .

UAct Statement

The University of Alabama is committed to an ethical, inclusive community defined by respect and civility. The UAct website (www.ua.edu/uact (<https://www.ua.edu/uact>)) provides extensive information on how to report or obtain assistance with a variety of issues, including issues related to dating violence, domestic violence, stalking, sexual assault, sexual violence or other Title IX violations, illegal discrimination, harassment, hate or bias incidents, child abuse or neglect, hazing, threat assessment, retaliation, and ethical violations or fraud.

Statement on COVID-19

All University faculty, staff, and students are expected to maintain a commitment to the health and safety of our campus community. Due to the current COVID-19 pandemic, specific health and safety standards are in place to minimize exposure and community spread on campus. In the interest of your health and safety and that of all UA students, faculty and staff, the University reserves the right to change the mode of instruction or schedule of instruction at any time, based upon prevailing public health and other guidance. While the method of delivery may change, educational instruction and opportunities will continue. As such, the University will not provide a refund of tuition, in whole or in-part, based on any such changes. Detailed information on changes in format or schedule can be found at studentaccounts.ua.edu (<https://studentaccounts.ua.edu>) and financialaid.ua.edu (<https://financialaid.ua.edu/>) .

All students must be familiar with and abide by the requirements outlined in the UA Return Plan | UA System Comprehensive Health and Safety Plan. Students must (1) wear a mask or face covering at all times while participating in face-to-face class; (2) adhere to social distancing standards; and (3) comply with all other health and safety restrictions. If a student refuses to comply with the requirements, the student will be asked to leave the class and reported for a conduct violation. Unless a student has an exemption from the requirement to wear a face covering, (more information can be found at ods.ua.edu/covid-19-disability/ (<http://ods.ua.edu/covid-19-disability/>)), the student will be reported to Student Life for further disciplinary action. More information on these requirements and UA Healthcheck system and screening can be found at healthinfo.ua.edu/returnplan (<https://healthinfo.ua.edu/returnplan>) . You are expected to visit the site and comply with all noted requirements related to in-person class attendance.