CS 4318: Artificial Intelligence

Spring 2022

Course syllabus

Class meetings

section 010: MWF 10:00–10:50 in MCS 112
section 020: MWF 11:00–11:50 in MCS 112

Instructor

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office hours: online MTWRF 2:00–4:00 and by appointment

Textbook

Stuart Russell and Peter Norvig. *Artificial Intelligence: A Modern Approach*. 4th edition. Pearson, 2021. ISBN: 978-0-13-461099-3. Available in the ASU bookstore.

Catalog description

Fundamental concepts and techniques of intelligent systems; representation and interpretation of knowledge on a computer; search strategies and control.

Prerequisites

CS 2336 (Data Structures and Algorithms) and senior standing are prerequisites for this course. Please see me if you haven't taken CS 2336 or if you're unsure about your proficiency in C++ and data structures.

Grading breakdown

50% homework/quizzes/projects/challenges

30% midterm exams (three or four)

20% final project

Student learning outcomes

After successful completion of this course, students will demonstrate an understanding of

- agent-based AI architectures.
- various searching algorithms commonly used in artificial intelligence software.
- adversarial search and game-playing agents.
- logic-based agents.
- machine learning.

Class format

This class will usually have a lecture/discussion format, with homework and programming assignments done primarily outside of class. It is very important that you watch all assigned videos and do all assigned reading before coming to class.

Assignments may consist of homework problem sets, programming projects and "agent challenges". In each agent challenge, you will program an agent that will compete against (and perhaps coöperate with) other students' agents on some task. Each agent challenge may have multiple iterations. You will need an account on the `csunix.angelo.edu` server to work on all programming assignments.

You will generally be asked to work individually on assignments. Discussion and giving and receiving help are generally encouraged when working on assignments, but all work you turn in must be your own; anything you turn in you must understand thoroughly and be prepared to explain in detail. Whenever you work with anyone but me (including tutors) in any way, you *must* write fully detailed comments in your code describing the help: *who* helped, *how* they helped on *which* part(s), etc. Failure to do so is considered taking credit for work not done and thus cheating. I will be glad to help you on assignments and concepts when you need it. You must complete exams *entirely* independently.

I will take attendance, and you will need to sit in the same place all semester. You have a duty to inform me as soon as you know that you'll have to miss a class meeting.

Instead of a comprehensive final exam at the end of the semester, I am planning a final project.

Blackboard (`angelo.blackboard.com`) will be used to keep track of grades and assignments. You should check Blackboard and your ASU e-mail at least once a day to make sure you're not missing anything. In particular, your ASU e-mail is the only reliable way I have of contacting you outside of class, so please don't neglect it.

Safety

Students must complete the required ASU Wellness Screening each day before coming to class. I strongly recommend and encourage wearing a mask covering both mouth and nose before, during and after class meetings. I also recommend keeping as much distance from others as is reasonably possible.

For safety reasons, I will hold office hours online using Blackboard Collaborate. Please take advantage of class meetings to ask questions and get help, but when you need help outside of class just get in touch and I'll do what I can to help.

Computer requirements

You may use PCs in the computer labs, but I recommend that you have your own Windows 10 computer ready to use when you can't get to a lab. You may need to download and install free software, such as the Respondus LockDown Browser. It is your responsibility to have and use a reliable Internet connection; for best results, use an Ethernet cable to connect to your Internet source instead of relying on Wi-Fi.

Semester schedule

This schedule of topics should be considered approximate and tentative.

week of	topic
January 19th	introduction to artificial intelligence
January 24th	intelligent agents
January 31st	classical search strategies
February 7th	classical search strategies
February 14th	beyond classical search
February 21st	beyond classical search
February 28th	adversarial search
March 7th	adversarial search
March 14th	*spring break*
March 21st	adversarial search
March 28th	logical agents
April 4th	first-order logic
April 11th	uncertainty
April 18th	machine learning
April 25th	machine learning
May 2nd	machine learning

Final exam/project

The final exam for this course is scheduled for Monday, May 9th, 10:30–12:30 (section 010) and Wednesday, May 11th, 10:30–12:30 (section 020). The plan is not to have a final exam, but we may use this time for some other purpose relating to the final project.

Academic honesty

Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. By remaining enrolled in this course you agree not to commit academic misconduct as defined in section I.B.1 of the Student Handbook, available at `www.angelo.edu/student-handbook`.

Important university policies

- You must contact Student Disability Services in order to request and to implement academic accommodations.
- For ASU's policy on absences due to religious holy days, see OP 10.19 at `www.angelo.edu/opmanual`.
- I am obligated to report any knowledge of sexual misconduct to the Title IX office; see `www.angelo.edu/services/title-ix`.

Modifications This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.