CS 4300: Artificial Intelligence

@ Utah Tech University

Fall 2024 Syllabus

Course Description

Required of students pursuing a Computer Science degree or emphasis. Introduces the broad field of artificial intelligence in computer software followed by specific applications in computer gaming strategies. Students will complete programming assignments. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Construct solutions for a range of problems using search algorithms. 2. Infer problems that can be solved using propositional logic and build appropriate solutions. 3. Design and implement Bayesian networks. 4. Integrate third-party libraries into solutions for large software projects. 5. Collaborate to solve large and complex problems. Course fee required. Prerequisites: CS 2420 (Grade C or higher); AND CS 2810 (Grade C or higher); AND CS 3005 (Grade C or higher). FA.

Prerequisites

CS 2420, CS 2810 and CS 3005 all with a C or better.

Course fees

Course fee: $20, used to assist in maintaining department infrastructure.

Sections

1. TR 9:00 - 10:15 am in Smith 116

   CRN: 40142

   Final exam December 10 at 9:00 - 10:50 am

Instructor

Instructor: Curtis Larsen

Email: curtis.larsen@utahtech.edu

Phone: 435-652-7972

Office: North Burns 233

Office Hours:

Office hours are a fantastic opportunity to receive personalized assistance with any questions or concerns you may have about course concepts, assignments, or anything else on your mind.

I’m here to support you throughout the week with regular office hours. No need to worry about telling me in advance to use the scheduled office hours, just drop by whenever it suits you! Whether you prefer a face-to-face chat in my office at North Burns 233 or joining me virtually via Zoom, the choice is yours. You can find the Zoom link conveniently posted in an announcement on Canvas.

For the Fall 2024 semester, I’ll be available during the following times:

- Mondays 1:00 pm - 2:00 pm
- Tuesdays 11:00 am - 12:00 pm
- Wednesdays 2:30 pm - 3:30 pm
- Thursdays 1:00 pm - 2:00 pm
- Fridays 11:00 am - 12:00 pm

If these times don’t fit your schedule, don’t hesitate to reach out to me. Simply shoot me an email or a message through Canvas, and we can find a time that works better for you. When you message me, suggesting a few alternative times would be incredibly helpful.

Looking forward to connecting with you during office hours!

Course Learning Objectives

At the successful conclusion of this course, students will be able to:

1. Construct solutions for a range of problems using search algorithms.
2. Infer problems that can be solved using propositional logic and build appropriate solutions.
3. Design and implement Bayesian networks.
4. Integrate third-party libraries into solutions for large software projects.
5. Collaborate to solve large and complex problems.

Resources

Textbook

There is no required text for the course. However, the following book is recommended for students.

1. *Artificial Intelligence: A Modern Approach 4th Ed.* by Russell and Norvig, ISBN: 9780137505135 (optional)

Computer Labs

You may use departmental computers and software in the Smith Computer Center. Some lab assistants may be able to help with assignments and pass off homework assignments for introductory courses.

Course Web Site

Assignment submissions and grades will be managed in the Canvas System.

Assignments and Exams

Reading

While there is no required text book. Students are encouraged to find and read relevant references.

Assignments

There will be assignment requirements due each week. Often assignment requirements will combine into larger projects to create software agents to perform rationally in a simulated environment.

Grading

Assignments will count for 100% of your point total.

Letter grades are assigned based on the percentage of possible points attained, according to the following chart:

Minimum Percentage	Letter Grade	Minimum Percentage	Letter Grade	Minimum Percentage	Letter Grade	Minimum Percentage	Letter Grade
94	A	84	B	74	C	64	D
90	A-	80	B-	70	C-	60	D-
87	B+	77	C+	67	D+	0	F

Course Policies

Attendance

Students are responsible for material covered and announcements made in class. School-related absences may be made up only if prior arrangements are made. The class schedule presented is approximate. The instructor reserves the right to modify the schedule according to class needs. Changes will be announced in class and posted to the website. Exams and quizzes cannot be made up unless arrangements are made *prior* to the scheduled time.

Occasional absences are acceptable as long as the student keeps up with assignment work. Students who miss more than two consecutive weeks of class or who miss more than 20% of scheduled classes during the

semester without making prior arrangements will receive a failing grade. Students who miss any scheduled exam (including midterm exams and the final exam) or fail to complete a final project without making prior arrangements will receive a failing grade.

Time Commitment

Courses should require about 45 hours of work per credit hour of class. This class will require about 135 hours of work on the part of the student to achieve a passing grade, which is approximately 9 hours per week. If you do not have the time to spend on this course, you should probably rethink your schedule.

Late Policy

Each assignment has a due date and a submission-cutoff date. The due date is the required date. The submission-cutoff date is to allow students to correct small problems discovered during pass-off, or to allow for minor interruptions to personal schedules. Late work will not be accepted after the submission-cutoff date.

Collaboration

Limited collaboration with other students in the course is permitted. Students may seek help learning concepts and developing programming skills from whatever sources they have available, and are encouraged to do so. Collaboration on assignments, however, must be confined to course instructors, lab assistants, and other students in the course. Students are free to discuss strategies for solving programming assignments with each other, but this must not extend to the level of programming code. Each student must code his/her own solution to each assignment. See the section on cheating.

Cheating

Cheating will not be tolerated, and will result in a failing grade for the students involved as well as possible disciplinary action from the college. Cheating includes, but is not limited to, turning in homework assignments that are not the student's own work. It is okay to seek help from others and from reference materials, but only if you learn the material. As a general rule, if you cannot delete your assignment, start over, and re-create it successfully without further help, then your homework is not considered your own work.

You are encouraged to work in groups while studying for tests, discussing class lectures, discussing algorithms for homework solutions, and helping each other identify errors in your homework solutions. If you are unsure if collaboration is appropriate, contact the instructor. Also, note exactly what you did. If your actions are determined to be inappropriate, the response will be much more favorable if you are honest and complete in your disclosure.

Where collaboration is permitted, each student must still create and type in his/her own solution. Any kind of copying and pasting is *not* okay. If you need help understanding concepts, get it from the instructor or fellow classmates, but never copy another's code or written work, either electronically or visually. The line between collaborating and cheating is generally one of language: talking about solutions in English or other natural languages is usually okay, while discussions that take place in programming languages are usually not okay. It is a good idea to wait at least 30 minutes after any discussion to start your independent write-up. This will help you commit what you have learned to long-term memory as well as help to avoid crossing the line to cheating.

University Policies

Utah Tech Student Policies

Disability/Accessibility Resources

Utah Tech strives to make learning materials and experiences accessible for all students so if you are a student with a medical, psychological, or learning disability or anticipate physical or academic barriers based on disability, you are welcome to let me know so we can discuss options. Students with documented disabilities are required to contact the Disability Resource Center located in the North Plaza Building, next to the Testing Center (435-652-7516) to explore eligibility process and reasonable accommodations related to disability.

Title IX Statement

Utah Tech seeks to provide an environment that is free of bias, discrimination, and harassment. If you have

been the victim of sexual harassment/misconduct/assault we encourage you to report this to the university's Title IX Director, Cindy Cole, (435) 652-7731, cindy.cole@utahtech.edu. If you report to a faculty member, she or he must notify the Title IX Director about the basic facts of the incident.

Email Disclaimer

You are required to frequently check your campus email account. Important class and university information will be sent to your campus email account, including Utah Tech bills, financial aid/scholarship notices, notices of canceled classes, reminders of important dates and deadlines, and other information critical to your success at Utah Tech and in your courses. To access your campus email account, visit mail.utahtech.edu. Your username is your Digital ID (e.g. D00111111) If you have forgotten your PIN, visit my.utahtech.edu and click the "Forgot Pin" button.

Useful Resources

- Disability Resource Center
- IT Help Desk
- Library
- Testing Center
- Tutoring Center
- Writing Center

Important Dates Fall 2024

Click on this link: for the official academic calendar, which has several important dates you should be aware of.

Aug 19 - Date classes begin

Aug 23 - Last day to add without instructor permission

Sep 9 - Last day for refund of tuition and fees

Sep 9 - Pell Grant census date

Sep 13 - Last day to add or audit classes with instructor permission

Oct 9 - Midterm grades posted

Oct 14 - Last day to drop an individual class

Nov 13 - Last day for complete withdrawal from all classes

Dec 5 - Last day of classes

Dec 9-12 - Final Exam dates

Dec 16 - Final grades posted