CS 7637 Syllabus

Knowledge-Based AI | Section MAY | 3 Credit Hours

Summer 2026

Instructor Information

Instructor: Christopher MacLellan

General Course Information

Description

This course surveys the theory and practice of Knowledge-Based Artificial Intelligence. Topics include knowledge representations (semantic networks, frames, scripts, logic), problem-solving strategies (means-ends analysis, case-based reasoning, planning), and machine learning methods (explanation-based learning, analogical reasoning, version spaces).

Course Learning Outcomes

By the end of this course, students will be able to: (1) explain core knowledge representations and reasoning strategies; (2) apply KBAI methods to solve novel problems; (3) design and implement a research project using KBAI techniques; and (4) communicate research findings in written and oral form.

Required Course Materials

No materials are required.

Grading Policy:

Quizzes 15%; Homework 30%; Course Project 30%; Exams 15%; Class Participation 10%. A≥90; B≥80; C≥70; D≥60; F<60. No curve.

Assignments

- Quizzes — 15%
- Homework — 30%
- Course Project — 30%
  Exams — 15%
  Class Participation — 10%

Description of Graded Components

Quizzes and homework are completed online via Canvas and Gradescope. Exams are in-person and closed book. The course project consists of four milestones and a poster presentation. Class participation includes peer feedback on projects and attendance at the final poster session.

Course Policies

Attendance and/or Participation

Attendance is not required, but all assignments will be based on material covered in class. The course uses a flipped-classroom format — students are expected to watch pre-recorded videos before each session and complete the associated quiz before the class deadline.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. [Review Georgia Tech's Honor Code](#) and the [student Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Not applicable.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.