CS472 Foundations of Artificial Intelligence
CS473 Practicum in Artificial Intelligence
Fall 2000

Where: Upson B17

When: 11:15–12:05 Mon, Wed, Fri

Professor: Claire Cardie

E-mail: cardie@cs.cornell.edu

Office Hours: 5161 Upson; Wed 1–2 and Fri 3–4

Course Description:

This course introduces the theoretical and computational techniques that serve as a foundation for the study of artificial intelligence (AI). Topics to be covered include the following:

1. Introduction of AI and background: What is AI? Related fields.
2. Problem solving by search: principles of search, uninformed ("blind") search, informed ("heuristic") search, game playing.
3. Logical knowledge representation and reasoning: knowledge bases and inference; constraint satisfaction; planning.
4. Knowledge-based systems and probabilistic reasoning: review of probability theory; probabilistic knowledge representation and reasoning; representing and handling uncertainty; expert system architectures; bayesian networks.
5. Learning: inductive learning, concept formation, decision tree learning, statistical approaches, neural networks.
6. Natural language understanding: syntactic processing, ambiguity resolution, text understanding.

Prerequisites: This course has no prerequisites other than a facility with programming (e.g., CS211 or CS212) and the basic mathematical skills obtained in CS280. An understanding of inference in first-order logic and basic blind search techniques (i.e., breadth-first and depth-first search) is also assumed, but background readings in these topics can be provided for those with a deficiency in this area.

Texts:

Artificial Intelligence: A Modern Approach; Russell and Norvig, Prentice-Hall, Inc., 1995.

Machines: The PC's in the Undergraduate PC Lab (317 Upson) are the primary computing resource for the class.

Class Notes and Handouts: Most class notes and handouts will be available on-line from the course home page.

Course Requirements:

Homework: There will be approximately 6 homework assignments. They will include a combination of problem sets (of a sort) and programming. **Assignments must be typewritten.** (Drawings, formulas, or calculations can be done by hand, if done so neatly.) Hopefully, electronic subsmissions will be available.

Students are encouraged to work in groups of up to 3 or 4 on homework assignments. Each student, however, is responsible for typing up his/her own solutions. The names of all collaborators should be identified on the first page of the homework.

All assignments are due at the beginning of class on the due date. Assignments turned in late will drop 10% for each period of 24 hours for which the assignment is late. In addition, no assignments will be accepted after the solutions have been made available.

Examinations: The course has one prelim (a midterm exam) and one final exam. The midterm is an in-class examination and the final will be given on the day and time slot scheduled by the university.

Project (for CS473 students only): The main assignment for CS473 is a course project. Students will work in groups (probably pairs) to design, build, and evaluate an intelligent system of their choice. Throughout the semester, project status reports and partial programs will be required. A separate "project" handout with details and due dates regarding the project proposal, status reports, and final project write-up will be made available from the course home page.

Academic Integrity: You are responsible for knowing and following Cornell's academic integrity policy. In short, the work you submit is expected to be **your own**. Collaboration is allowed as prescribed above, but you cannot copy all or part of another student's homework or program — regardless of whether that copy is on paper or on-line. Violation of the Academic Integrity Code very often results in *failure in the course*. **If there is any doubt as to what kind of collaboration is allowed, please ask the instructor.**

CS472 Tentative Grading Policy:

Assignments	50%
Midterm Exam	15%
Final Exam	30%
Participation/Interest	5%

"Acceleration points" will be awarded to students making steady, upward progress throughout the semester.

CS473 Tentative Grading Policy:

Preliminary Project Proposal	5%
Project Proposal and Presentation	15%
Status Report 1	10%
Status Report 2	10%
Final Code and Write-up	60%