CS4391 Special Topics in AI

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Basic Information

- MWF 1:00 PM – 1:50 AM in ENGCTR 205

Texts

- *Knowledge Representation, Reasoning, and Design of Intelligent Agents*, by M. Gelfond and Y. Kahl, PDF

Catalogue Listing

Prerequisite: Senior standing. In-depth treatment of one or more topics in artificial intelligence. Such topics include robotics, knowledge representation, or automated reasoning.

Course Objectives

The purpose of this course is to give students in-depth knowledge of several topics in knowledge representation and reasoning, including extensions of ASP, actions languages, probabilistic reasoning, and programming language Prolog. The emphasis will be on the design of knowledge representation languages and the methodology of their use.

Students who succeed in this course will:

1. have a better understanding of knowledge representation and declarative programming.
2. learn several state-of-the-art knowledge representation languages, rationale behind their design, and methodology of their use.
3. understand some mathematical properties of declarative programs and their use in practice.
4. get experience in reading and understanding research papers in the area.

How to Succeed in this Course

> "We are what we repeatedly do. Excellence, then, is not an act, but a habit." — Aristotle

- Find a friend with whom you may study.
- Read carefully, and study often and with a purpose.
- Know your definitions.
- Start every assignment on the day it is given.
- Get help if you need it.

Grading Policy

- Home work — 50 points
- Two Exams — 200 points
- Project — 100 points
- Final — 150 points

Lecture Schedule

The table below provides an initial lecture schedule. Please note that **this schedule is tentative and subject to change**. Students are responsible for making sure they are informed about announcements.

Date	Topic
Week 1	Inroduction
Week 2	Answer Set Programming
Week 3	Answer Set Programming
Week 4	Answer Set Programming
Week 5	Defining Functions
Week 6	Action Languages
Week 7	Action Languages
Week 8	Action Languages
Week 9	Probabilistic Reasoning
Week 10	Probabilistic Reasoning
Week 11	Probabilistic Reasoning
Week 12	
Week 13	Prolog Programming
Week 14	Prolog Programming
Week 15	Discussion and Review

Ethical Conduct

All violations of academic integrity will be reported to the **Student Judicial Programs**. All work in this course shall be done in conformance with the statements made on academic integrity in **The Texas Tech University Catalog**: It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.

Students with Disabilities

Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from **Student Disability Services** during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

Learning Outcomes and Assessment Methods

Objective	ABET Outcomes	Assessment Methods
Apply the learned methodology to solve problems.	(a, b, c, i, j, k)	All assignments
Learn programming in several declarative languages	(a, b, c, i, j, k)	All assignments
Understand general principles of language design and how to apply them to evaluating languages and programs	(a, b, c, i, j, k)	All assignments.
Learn how to read scientific literature	(a, b, c, i, j, k)	Some assignments and projects.