

CPSC 625-600 Artificial Intelligence: Fall 2010

Syllabus

NEWS: 8/31/10, 11:48AM (Tue)

- [8/31] Course web page goes online
- [LINKS] • [News archive](#) • [Grades](#) • [Codes](#) • [Lecture notes](#)

**Read-Only Bulletin Board: 8/25/08,
08:57PM (Mon)**

Page last modified: 8/31/10, 11:56AM Tuesday.

[General Information](#) | [Resources](#) | [Weekly Schedule](#) | [Credits](#) | [Lecture Notes](#) | [Example Code](#)

I. General Information

Instructor:

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Prerequisite/Restrictions:

CPSC 311 or equivalent

Lectures:

Tue/Thu 2:20pm-3:35pm, HRBB 113

Goals:

To understand the problems in AI and to learn how to solve them:

1. traditional methods in AI (search, pattern matching, logical inference, theorem proving, etc.).
2. modern approaches in AI (learning, probabilistic approaches, etc.).

Textbook:

Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach* (AIMA, hereafter), **3rd Edition**, Prentice Hall, New Jersey, 2010.

[Book Homepage](#)

* The first edition may be okay if that's what you have.

Computer Accounts and Usage:

1. Computer accounts: if you do not have a unix account, ask for one on the CS web page. We will be using the [CMU Common Lisp](#) as our main language. You may use a different language but example code will only be made available in Lisp.
2. CMU Common Lisp:
 - o [Carnegie Mellon U. Common Lisp homepage](#)
 - o On all SunOS systems in the department (**sun.cs.tamu.edu** etc.), the program is installed in **/opt/apps/cmucpl/bin/lisp**.
 - o See the [Read-only Board](#) for a brief example.

Topics to be covered:

See the [Weekly Schedule](#) section for more details.

1. Introduction
2. LISP
3. Search
4. Game playing, alpha-beta pruning
5. Propositional Logic, first-order logic, theorem proving
6. Uncertainty, probabilistic approaches
7. Learning
8. Special topics

Grading:

1. Exams: 30% (midterm: 15%, final: 15%)
2. Homeworks: 15% (about 3, 5% each)
3. Programming Assignments: 24% (about 2, 12% each)
4. Term project and report: 31%

Grading will be on the absolute scale. The cutoff for an `A' will be 90% of total score, 80% for a `B', 70% for a `C', 60% for a `D', and below 60% for an 'F'.

If you are absent without any prior notification to the instructor, your class participation score will be set to 0% at the very first occurrence, except for excuses allowed by the university rules (medical, etc.).

Academic Integrity Statement:

AGGIE HONOR CODE: An Aggie does not lie, cheat, or steal or tolerate those who do.

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

For additional information please visit: <http://www.tamu.edu/aggiehonor/>

Local Course Policy:

- All work should be done **individually** and **on your own** unless otherwise allowed by the instructor.
- Discussion is only allowed immediately before, during, or immediately after the class, or during the instructor's office hours.
- If you find solutions to homeworks or programming assignments on the web (or in a book, etc.), you may (or may not) use it. Please check with the instructor.

Students with Disabilities:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

II. Resources

1. [LISP quick reference](#)
2. **CMU Common Lisp** (This one will be used in the class.)
3. [GNU Common Lisp](#)
4. [My general resources page](#)
5. [An interesting popular view of AI](#)
6. [Chess playing program \(with neat visualization\)](#)

III. Weekly Schedule and Class Notes

- **Lecture notes (in PDF format)**: all notes will be uploaded in this directory.
- It is **your responsibility** to download, print, and bring the notes to the class. Notes will be available 24 hours before each class.
- See the **TAMU Calendar** for breaks, etc.
- When reading the chapters, you do not have to memorize everything. A separate list of terms you need to know will be handed out prior to each exam.

- All reading material below refers to the AIMA book 2nd edition. The (*old XX*) tags next in the Reading field are the corresponding chapters in the old AIMA book (1st edition). To see how the 1st and the 2nd edition chapters correspond, see the ["AIMA 1st and 2nd edition chapter map"](#).
- More detail will be available as we go along.

Week	Date	Topic	Reading	Assignments	Notices and Dues	Notes
1	8/31	Introduction	Chapter 1 1.1 and 1.2		First day of class	slide01.pdf
1	9/2	Introduction, Lisp	Chapter 26 26.1 and 26.2			slide01.pdf slide02.pdf
2	9/7	Lisp, Symbolic Differentiation	Lisp quick ref	Program 1 announced		slide02.pdf
2	9/9	Uninformed Search (BFS,DFS,DLS,IDS)	Chapter 3.1-3.5 (3.6,3.7 optional)			slide03.pdf
3	9/14	Informed Search (BestFS, Greedy, A*)	Chapter 4.1-4.3 (4.4 optional)(old 4.1-4.3)			slide03.pdf
3	9/16	IDA*, Heuristic Search, Simulated Annealing, etc.	Chapter 4		Program 1 due (11:59pm): extended to 9/16	slide03.pdf
4	9/21	Game playing Min-Max, Alpha-Beta	Chapter 5 (optional) and 6.1-6.8 (old 5)	Program 2 announced		slide03.pdf
4	9/23	Game playing	Chapter 5 (optional) and 6.1-6.8 (old 5)			slide03.pdf
5	9/28	Game playing wrap up; Propositional Logic	Chapter 7.1, 7.3, 7.5, 7.6 (old 6)			slide03.pdf slide04.pdf
5	9/30	Theorem proving	Chapter 9 (old 10)	Homework 1 announced		slide04.pdf
6	10/5	FOL; Theorem proving	Chapter 8 (old 7);		Program 2 due	slide04.pdf

		for FOL	Chapter 9 (old 10)		(11:59pm)	
6	10/7	Inference for FOL	Chapter 9		Homework 1 due, in class	slide04.pdf
7	10/12	Midterm Exam	In class			
7	10/14	Uncertainty	Chapter 13 (old 14)			slide05.pdf
8	10/19	Uncertainty	Chapter 13 (old 14)			slide05.pdf
8	10/21	Uncertainty	Chapter 13 (old 14), Chapter 14 (old 15)			slide05.pdf
9	10/26	Guest lecture	topic TBA			
9	10/28	Learning	Chapter 14 (old 15)			slide06.pdf
10	11/2	Learning	Chapter 18			slide06.pdf
10	11/4	Learning	Chapter 18			slide06.pdf
11	11/9	Advanced topic	Autonomous semantics			slide07.pdf
11	11/11	Learning	Chapter 20 (old 19)		Homework 2 due, in class	slide06.pdf slide09.pdf
12	11/16	Guest lecture	topic TBA			
12	11/18	Advanced topic				
13	11/23	Advanced topic				
13	11/25	No class (Thanksgiving)				
14	11/30	Final Exam				
14	12/2	Project presentation				
15	12/7	Project presentation				

IV. Credits

Many ideas and example codes were borrowed from [Gordon Novak's AI Course](#) and [Risto Miikkulainen's AI Course](#) at the University of Texas at Austin (Course number CS381K).

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