

CPSC 420-500 Artificial Intelligence: Fall 2006

Syllabus

NEWS: 8/28/06, 06:26PM (Mon)

- [8/28] Lecture notes [slide01.pdf](#) uploaded. Print and bring to class.
- [8/23] Course web page goes online. Keep tuned in for updates.
- [Grades](#) — [Skeleton Codes](#) — [Lecture Notes](#)

Read-Only Bulletin Board.: 8/24/06, 08:40AM (Thu)

Page last modified: 8/28/06, 11:15AM Monday.

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I. General Information

Instructor:

[Dr. Yoonsuck Choe](#)

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Office hours: Tue/Thu 11:00am–12:30pm.

TA:

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Office: Richardson 911 (ask for the TA room)

Phone: 979-845-7143

Office hours: MWF 10-11am

Prerequisite/Restrictions:

CPSC 311

Lectures:

Tue/Thu 12:45pm-2:00pm, ZACH 105B

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), **2nd Edition**, Prentice Hall, New Jersey, 2003.

ISBN 0-13-790395-2

[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. Example code will only be made available in Lisp, and in general other languages will not be permitted.

2. CMU Common Lisp:

- [Carnegie Mellon U. Common Lisp homepage](#)
- On all SunOS systems in the department ([sun.cs.tamu.edu](#), [interactive.cs.tamu.edu](#), [compute.cs.tamu.edu](#), etc.), the program is installed in `/usr/local/bin/lisp`. (Do **not** run your jobs on [unix.cs.tamu.edu](#).)
- 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: 40% (midterm: 20%, final: 20%)
2. Homeworks: 15% (about 3, 5% each)
3. Programming Assignments: 36% (about 3, 12% each)
4. Paper commentary: 4% (1 page, single-spaced)
5. Class participation: 5%

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 unforeseen emergencies.

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. [GCL manual](#) (very in-depth and technical).
4. [GNU Common Lisp](#)
5. [Lisp resources](#)
6. [My general resources page](#)
7. [625/689 Reading List](#)
8. [An interesting popular view of AI](#)

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 [2006 Fall 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	8/29	Introduction	Chapter 1 1.1 and 1.2		First day of class	slide01.pdf
1	8/31	Introduction	Chapter 26 26.1 and 26.2		Unix basics (DIY)	slide01.pdf slide02.pdf
2	9/5	Lisp	Lisp quick ref			slide02.pdf
2	9/7	Lisp (Symbolic Differentiation)				slide02.pdf
3	9/12	Uninformed Search (BFS,DFS,DLS,IDS)	Chapter 3.1-3.5 (3.6,3.7 optional)			slide03.pdf
3	9/14	IDA*,Heuristic Search, Simulated Annealing, etc.	Chapter 4			slide03.pdf
4	9/19	Informed Search (BestFS,Greedy,A*)	Chapter 4.1-4.3 (4.4 optional)(old 4.1-4.3)			slide03.pdf
4	9/21	Game playing Min-Max, Alpha-Beta	Chapter 5 (optional) and 6.1-6.8 (old 5)			slide03.pdf
5	9/26	Game playing wrap up; Propositional Logic	Chapter 7.1, 7.3, 7.5, 7.6 (old 6)			slide03.pdf slide04.pdf
5	9/28	Theorem proving	Chapter 9 (old 10)			slide04.pdf

6	10/3	FOL; Theorem proving for FOL	Chapter 8 (old 7); Chapter 9 (old 10)			slide04.pdf
6	10/5	Inference for FOL	Chapter 9			slide04.pdf
7	10/10	Uncertainty	Chapter 13 (old 14)			slide05.pdf
7	10/12	Midterm	Exam		In class exam. 10/10:Midsemester grades due	
8	10/17	No class			Society for Neuroscience conference (make-up TBA)	
8	10/19	Uncertainty	Chapter 13 (old 14)			slide05.pdf
9	10/24	Uncertainty	Chapter 13 (old 14), Chapter 14 (old 15)			slide05.pdf
9	10/26	Learning	Chapter 14 (old 15)			slide06.pdf
10	10/31	Learning	Chapter 18			slide06.pdf
10	11/2	Learning	Chapter 18			slide06.pdf
11	11/7	Learning				slide06.pdf
11	11/9	Learning	Chapter 20 (old 19)			slide06.pdf
12	11/14	Natural language processing				slide07.pdf
12	11/16	Natural language processing				slide07.pdf
13	11/21	Advanced topics	Thalamus and analogy			slide08.pdf
13	11/23	No class			Thanksgiving holiday	
14	11/28	Advanced topics	Analogy			slide09.pdf
14	11/30	Advanced topics	Biologically inspired vision			
15	12/5	Course wrap-up and final exam review			Last day of class	
	12/13	Final Exam			8:00--10:00am, ZACH 105B	

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).