CPSC 625-600 Artificial Intelligence: Fall 2008

Syllabus (print this page)

NEWS: 8/25/08, 09:52PM (Mon)

• [8/25] 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: 8/25/08, 10:22PM Monday.

I. General Information

Instructor: 
Dr. Yoonsuck Choe
Email: choe(at)tamu.edu
Office: HRBB 322B
Phone: 979-845-5466
Office hours: Tue/Thu 2:00pm–3:00pm.

TA:
None

Prerequisite/Restrictions:

CPSC 311 or equivalent

Lectures:

Tue/Thu 12:45pm-2:00pm, 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:

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:
   - Carnegie Mellon U. Common Lisp homepage
   - On all SunOS systems in the department (sun.cs.tamu.edu etc.), the program is installed in /opt/apps/cmucl/bin/lisp.
   - 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/](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
9. 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.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assignments</th>
<th>Notices and Dues</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/26</td>
<td>Introduction</td>
<td>Chapter 1</td>
<td></td>
<td></td>
<td>slide01.pdf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.1 and 1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8/28</td>
<td>Introduction</td>
<td>Chapter 26</td>
<td></td>
<td></td>
<td>slide01.pdf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>26.1 and 26.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9/2</td>
<td>Lisp, Symbolic Differentiation</td>
<td>Lisp quick ref</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9/4</td>
<td>Uninformed Search (BFS,DFS,DLS,IDS)</td>
<td>Chapter 3.1-3.5</td>
<td>(3.6,3.7 optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9/9</td>
<td>Informed Search (BestFS,Greedy,A*)</td>
<td>Chapter 4.1-4.3</td>
<td>(4.4 optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9/11</td>
<td>IDA*, Heuristic Search, Simulated Annealing, etc.</td>
<td>Chapter 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9/16</td>
<td>Game playing Min-Max, Alpha-Beta</td>
<td>Chapter 5 (optional)</td>
<td>and 6.1-6.8 (old 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9/18</td>
<td>Game playing</td>
<td>Chapter 5 (optional)</td>
<td>and 6.1-6.8 (old 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9/23</td>
<td>Game playing wrap up; Propositional Logic</td>
<td>Chapter 7.1, 7.3, 7.5, 7.6 (old 6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9/25</td>
<td>Theorem proving</td>
<td>Chapter 9 (old 10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>9/30</td>
<td>FOL; Theorem proving for FOL</td>
<td>Chapter 8 (old 7); Chapter 9 (old 10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10/2</td>
<td>Inference for FOL</td>
<td>Chapter 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10/7</td>
<td>Midterm Exam</td>
<td>In class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Chapter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>--------------</td>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/9</td>
<td>Uncertainty</td>
<td>13 (old 14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/14</td>
<td>Uncertainty</td>
<td>13 (old 14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/16</td>
<td>Uncertainty</td>
<td>13 (old 14), 14 (old 15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/21</td>
<td>Learning</td>
<td>14 (old 15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/23</td>
<td>Learning</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/28</td>
<td>Learning</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/30</td>
<td>Learning</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/4</td>
<td>Learning</td>
<td>20 (old 19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/6</td>
<td>Learning</td>
<td>20 (old 19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/11</td>
<td>Learning</td>
<td>20 (old 19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/13</td>
<td>Advanced topic</td>
<td>Autonomous semantics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/18</td>
<td><strong>Final Exam</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/20</td>
<td>Project presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/25</td>
<td>Project presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/27</td>
<td><strong>No class (Thanksgiving)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/2</td>
<td>Project presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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).

$Id: index.php,v 1.4.1.8 2006/08/22 22:01:11 choe Exp$