CS347 - Introduction to Artificial Intelligence

Spring Semester 2014 Syllabus

Description

This course is meant as a first introduction to the field of Artificial Intelligence (AI). Instead of providing a (necessarily) superficial survey of the many topics covered by AI, this course will instead primarily emphasize a few important AI topics, including advanced non-informed search (branch-and-bound), informed (heuristic) search, adversarial (multi-agent) search, online search, and local search.

Course Objectives

This course has four main objectives:
1. a solid understanding of how to formally specify search problems and analyze the associated search spaces,
2. knowledge of the basic datastructures and algorithms used in non-informed, informed, adversarial, online, and local search,
3. the skill to implement custom search solutions for specific problems, and
4. the ability to perform time complexity, space complexity, and performance analysis of search algorithms.

Intended Audience & Prerequisites

This course is aimed at both undergraduate & graduate students in any science or engineering degree program who are proficient in an approved procedural programming language (the following languages are preapproved: C, C++, C#, Java, and Python; other languages need instructor approval) and have a solid understanding of data structures and algorithms. If in doubt, contact the instructor! The prereq for this course is CS253 - Algorithms

Course Policies

Academic Alert System

The purpose of the Academic Alert System is to improve the overall academic success of students by improving communication among students, instructors and advisors; reducing the time required for students to be informed of their academic status; and informing students of actions necessary by them in order to meet the academic requirements in their courses.

Disabilities

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with the instructor as early as possible in the semester. You will need to request that the Disability Support Services staff send a letter to the instructor verifying your disability and specifying the accommodation you will need before the instructor can arrange
your accommodation. Disability Support Services is located in 203 Norwood Hall, their phone number is 341-6655, and their E-mail is dss@mst.edu.

**Academic Dishonesty**
Every student enrolled in this course is expected to be familiar with Missouri S&T's Student Academic Regulations, including the section on Conduct of Students which on pages 27-28 defines several forms of Academic Dishonesty such as cheating, plagiarism, and sabotage. Incidences of Academic Dishonesty will typically result in zero grades for the respective course components, notification of the student's advisor, the student's department chair, and the campus undergraduate/graduate studies office, and further academic sanctions may be imposed as well in accordance with the regulations. Note that those who allow others to copy their work are just as guilty of plagiarism and will be treated in the same manner.

**Attendance**
On campus students are required to attend, distance students have no attendance requirement. On campus students who miss more than three lectures before WD day or more than five lectures before the last day to drop, may be dropped for lack of attendance.

**Makeups & Extensions**
There will be no makeups; however, your worst exam grade will be dropped. For distance students: if a posted exam date or assignment deadline is known in advance to pose an irresolvable conflict, then with sufficient notice the instructor will attempt to accommodate all reasonable requests for alternative dates (example of reasonable request: a working professional distance student being sent out of town on business by their boss).

**Exams**
There will be three exams during the semester and one comprehensive final exam during finals week which counts double. Distance students can either take exams on campus with the on campus students or use a proctoring service approved by the instructor. The cumulative exam grade will be determined as follows:

\[
\text{Max}\left(\frac{\text{Exam}1+\text{Exam}2+\text{Exam}3}{3},\frac{\text{Exam}1+\text{Exam}2+\text{Exam}3+2*\text{Final}}{4}\right)
\]

This means that students happy with their grade at the end of the semester can skip taking the comprehensive final exam, but it also means that taking the final exam can only improve your grade, never lower it.

**Exercises and Programming Assignments**
Unless specified otherwise, all exercises and programming assignments are due at 11:59pm of their respective due dates and are to be submitted via this course's Blackboard Assignment Tool following the instructions posted at: http://web.mst.edu/~tauritzd/submission.html. All code should be properly commented and documented. Exercises need to be electronically typeset and submitted in either PDF or MSWord file format. PDF file format is preferred and you are encouraged to typeset using LaTeX. Unless specified otherwise, the default penalty for late submission is a 5% point deduction for the first 24 hour period and a 10% point deduction for every additional 24 hour period. So 1 hour late and 23 hours late both result in a 5% point deduction, 25 hours late results in a 15% point deduction, etc.
Instructor

Name: Daniel Tauritz, Ph.D.
Office: 315 Computer Science Building

Office hours: By appointment or according to the following "open door" policy: if the instructor's office door is wide open, you are welcome to drop by; if the instructor's office door is only slightly ajar, only knock in case of an important, time-critical circumstance; finally, if the door is closed, knock only in case of an absolute emergency.

E-mail: tauritzd@mst.edu
WWW: http://web.mst.edu/~tauritzd
Office phone: (573) 341-7218
Office fax: (573) 341-4501
Secretary phone: (573) 341-4491

Course Information

Course website: http://web.mst.edu/~tauritzd/courses/cs347/sp2014
Lecture times: Tuesdays & Thursdays 9:30 AM - 10:45 AM
Lecture venue: 209 Computer Science Building [Egress map (emergency exit route)]
Course Schedule: Dynamic schedule
Teaching Assistants: TBA

Grading Information

Exams (3 during semester + 1 comprehensive final): 35% of total grade
Exercises: 10% of total grade
Puzzle assignments: 20% of total grade
Game assignments: 35% of total grade
Final grade for undergraduate students: [90-100]: A, [80-90>: B, [70-80>: C, [60-70>: D,
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<thead>
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<th>Final grade for graduate students</th>
<th>&lt;60: F</th>
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<tr>
<td>[90-100]: A, [80-90&gt;: B, [70-80&gt;: C, &lt;70: F</td>
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