

Coordinates:

Time: 9:40am - 11:00pm, Tuesdays and Thursdays
 Location: Humanities & Social Sciences, room 1402

Instructor:

Christian Shelton
 cshelton@cs.ucr.edu
 office hours: Tuesdays 2-4pm, EBU II 327

Text: *Artificial Intelligence: A Modern Approach, second edition* by Stuart Russell and Peter Norvig.

Course Purpose: This course is a survey of modern problems, algorithms, and techniques in artificial intelligence. As such, it is necessarily broad but shallow. We will spend approximately two weeks on each of four topics, plus a few lectures on other miscellaneous topics. The emphasis will be on core AI algorithms and methods, but we will touch on some applications.

Planned Class Schedule:

week		Tuesday		Thursday	assigned	due
0			9/28	Intro, what is AI?	PS 1	
1	10/3	Search	10/5	Adversarial search		
2	10/10	Optimization	10/11	Path planning		
3	10/17	Logic resolution	10/19	Predicate logic	PS 2	PS 1
4	10/24	Planning	10/26	<i>No Class</i>		
5	10/31	Markov models	11/2	Utility Theory, MDPs		
6	11/7	Reinforcement learning	11/9	Supervised learning I	PS 3	PS 2
7	11/14	Learning Theory	11/16	Supervised learning II		
8	11/21	Parameter Estimation	11/23	<i>No Class</i>	Final PS	
9	11/28	EM	11/30	slack/unknown		PS 3
10	12/5	guest lecture	12/7	guest lecture		
		————— finals week —————				Final PS

Course Work: There will be no exams for this course. Three problem sets will be due during the quarter. Each will have some theory questions and one programming assignment. They will be handed out on Thursdays, three weeks before they are due.

As a fourth and final problem set, you will write an agent to compete against your fellow classmates' entries in a simulated environment. The competition will be run during finals week at a time and place to be decided. The goal of this final assignment is for you to demonstrate your ability to take the different algorithms described during the course and combine them into a single useful agent.

Please turn in the written (theory) questions in class and e-mail me a `.tar.gz` file (please use this compression method) of the code for the programming portion. Each assignment will come with C++ code designed to help you with the non-AI parts of the assignment. Programming assignments will be graded on a x86 Linux platform using `g++`. Familiarity with C++ will be a useful skill for this class.

These problem sets will be non-trivial, so allocate enough time for them. Leaving them to the last moment is asking for trouble. Hopefully most of the work will be interesting and instructional, and not tedious. All problem sets must be turned in by the beginning of class on the Thursday they are due. If you are not finished, turn in whatever you have completed. **Absolutely no assignments will be accepted after class on the due date.** By enrolling in this course, you are agreeing to the problem set schedule above. It is your responsibility to schedule your time so that you can turn the homework in on time.

External sources: The problem sets are to be done alone. You may **not** use any code other than code supplied by the instructor for the programming portions of the problem set. While you may be able to find some of the algorithms on the internet, the point of the assignments is for you to learn the subtleties of the algorithm by coding it up yourself. Similarly, the essay questions must represent your own work. There are no formal exams. These problem sets take their place.

Grade: Each problem set (including the final one) will be worth 25% of your grade.