

CSG120: Foundations of Artificial Intelligence

Fall 2003

Instructor: Professor Ron Williams

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Office Hours: Thursday 3:30-5:00, or by appointment

Course web page: <http://www.ccs.neu.edu/home/rjw/csg120>

Textbook: *Artificial Intelligence: A Modern Approach, 2nd Edition*, by Stuart Russell and Peter Norvig, Prentice-Hall, 2003.

Content: This course introduces you to some of the techniques and issues in developing programs (agents) that act intelligently. The course will cover the general theory behind the techniques, and you will also gain additional familiarity with some of them by creating and/or working with Common Lisp programs that implement them. The specific topics covered in CSG120 are search, knowledge representation and manipulation using propositional and first-order logic, planning, Bayesian inference networks, Markov decision processes, and various forms of machine learning. Throughout the course, the notion of a rational agent operating in a specified environment will provide a unifying perspective.

Prerequisites: Working knowledge of Common Lisp.

Grading: Your overall grade for this course will be based on homework (40%), a midterm examination (20%), and a final examination (40%).

Homework: Homework assignments will be given out at the rate of approximately one every 2 weeks. Homework assignments must be turned in by the due date to receive full credit. Homework turned in up to 1 week late will be penalized 20%, and no homework will be accepted beyond 1 week past its due date.

Examinations: There will be a 1-hour midterm examination given during the class meeting time on Thursday, October 30 and a 3-hour final examination given on Thursday, December 18.

Approximate Course Schedule:

Date	Topic	Chapters
Sept. 11	Introduction, Intelligent Agents	1, 2
	Problem Solving Through Search	3
Sept. 18	Informed Search	4
Sept. 25	Constraint Satisfaction	5
	Adversarial Search	6
Oct. 2	Logical Agents, Propositional Logic	7
	First-Order Logic	8
Oct. 9	Inference in First-Order Logic	9
Oct. 16	Knowledge Representation	10
	Planning	11
Oct. 23	Planning (cont.)	11, 12
Oct. 30	MIDTERM EXAM	
	Uncertainty & Probabilistic Reasoning	13
Nov. 6	Bayesian Networks	14
Nov. 13	Learning From Observations	18
Nov. 20	Learning From Observations (cont.)	20
Nov. 27	THANKSGIVING HOLIDAY	
Dec. 4	Sequential Decision Problems	15, 17
Dec. 11	Reinforcement Learning	21
Dec. 18	FINAL EXAM	