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CS 409/609: Principles of Artificial Intelligence

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CS409/609: PRINCIPLES OF ARTIFICIAL INTELLIGENCE FALL 2010

INFORMATION SYLLABUS ASSIGNMENTS

TENTATIVE SYLLABUS (SUBJECT TO REVISION ACCORDING TO PROGRESS)

Day	Topic	Reading	Optional Reading
9/08/10	General Introduction to AI	RN 1	<u>Artificial Intelligence</u> at Wikipedia; <u>Computing Machinery and Intelligence</u> by A. Turing
9/13/10	Search Problems	RN 3.1-3.3	
9/15/10	Blind Search	RN 3.4	
9/20/10	A* Search and Heuristic Functions	RN 3.4-3.6	<u>A* Search</u> at Wikipedia
9/22/10	Local Search	RN 4.1-4.5	
9/27/10	Local Search; Searching in Games	RN 6	
9/29/10	Searching in Games	RN 5	
10/04/10	Game Theory	RN 17.6-17.7	<u>Game Theory</u> at Wikipedia; <u>The Tragedy of the Commons</u> by G. Hardin; <u>News; Traveler's Dilemma</u> at Wikipedia <u>Traveler's Dilemma</u> at Scientific American
10/06/10	Summary of Search and Game Theory; Matlab Tutorial; Uncertainty and Probability	RN 13	<u>Matlab Manual</u> ; <u>Matlab Answers</u> at MIT; <u>Matrix Operations</u> ; <u>File Operations</u> ; <u>Plotting/Graphing</u>
10/11/10	Recitation for Homework and Exam; Probabilistic Reasoning using Bayesian Networks	RN 14.1-14.3	<u>Bayesian Network</u> at Wikipedia;
10/13/10	Midterm		
10/18/10	Inference in Bayesian Networks	RN 14.4-14.5	<u>Judea Pearl's classic paper</u> ; <u>Belief Propagation</u> at Wikipedia;

10/20/10	Learning with Maximum Likelihood	RN 20.1-20.2	
10/25/10	Learning with Hidden Variables	RN 20.3	
10/27/10	Hidden Markov Models; Speech Recognition	RN 15.3	HMM at Wikipedia; HMM tutorial by L. Rabiner;
11/01/10	Neural Networks	RN 18.7	
11/03/10	Decision Trees	RN 18.3	
11/08/10	Decision Theory; Markov Decision Processes	RN 16.1-16.3; 17.1-3	Markov Decision Process at Wikipedia;
11/10/10	Reinforcement Learning	RN 21.1-21.6	Reinforcement Learning at Wikipedia
11/15/10	Statistical Machine Translation	RN 23.4	Machine Translation at Wikipedia; Machine Translation from Jurafsky and Martin's <i>Speech and Language Processing</i> ; Google Translator