



Reference: Lecture schedule

1. Monday Sept 8: Administrivia, What is “Artificial Intelligence”?
2. Wednesday Sept 10: **Part I: Problem-Solving as Search**
 - Course theme: What is “Game AI”?; Uninformed search
3. Monday Sept 15: Heuristic search;
 - **Application in Game AI: How to Achieve Lightning-Fast A* (graduate presentation)**
4. Wednesday Sept 17: Constraint satisfaction problems and backtracking search
5. Monday Sept 22: (continued); **Application in Game AI: Constraint Satisfaction from Theory to Practice (Rogue-Like Level Population) (graduate presentation and video)**
6. Wednesday Sept 24: Local search
7. Monday Sept 29: **Part II: Knowledge Representation and Reasoning**
 - Logic for formal knowledge representation: Propositional logic review
8. Wednesday Oct 1: Reasoning in propositional logic
Assignment 1 due



Reference: Lecture schedule (continued)

9. Monday Oct 6: Ontological engineering (1/2): Introduction to ontologies; Computational ontologies: An OWL Tutorial
10. Wednesday Oct 8: Ontological engineering (2/2): An OWL Tutorial (continued); **Groupwork on Assignment 2 question: Representing a fantasy domain in OWL**

Monday Oct 13: Thanksgiving Holiday

11. Wednesday Oct 15: Reasoning under uncertainty: Belief networks
12. Monday Oct 20: (continued); Inference in belief networks
13. Wednesday Oct 22: Reasoning under uncertainty:
 - **Applications in Game AI: Fuzzy Logic; Bayesian Networks; Hidden Markov Models (3 graduate presentations)**

Assignment 2 due

14. Monday Oct 27: Planning with certainty: STRIPS
15. Wednesday Oct 29: Planning with uncertainty: Decision networks (1/2)
16. Monday Nov 3: Planning with uncertainty: Decision networks (2/2), Utility theory; **Application in Game AI: Improving AI Decision Modeling Through Utility Theory (video)**



Reference: Lecture schedule (cont'd)

17. Wednesday Nov 5: **Part III: Learning**
 - Overview of Machine Learning
18. Monday Nov 10: Decision Trees
19. Wednesday Nov 12: **Application in Game AI: Platforming MOBA Bots for AWESOMENAUTS using Decision Trees (graduate presentation and video)**
Assignment 3 due
20. Monday Nov 17: **Applications in Game AI: Neural Networks: Constructing Adaptive AI using Knowledge-Based NeuroEvolution; Genetic Algorithms: Evolving the Perfect Troll; Reinforcement Learning in Games (3 graduate presentations)**
21. Wednesday Nov 19: **Guest lecture: Research in Applied Machine Learning; (possibly additional graduate presentations)**
22. Monday Nov 24: **Part IV: Communication**
 - Overview of Natural Language Processing; Some applications
23. Wednesday Nov 26: **Application in Game AI: Storytelling in FAÇADE (demo)**
Monday Dec 1: Assignment 4 due