

Brooklyn College
Department of Computer and Information Science

CISC 7410 [716] Artificial Intelligence

37½ hours plus conference and independent work; 3 credits

Techniques for making machines exhibit intelligent behavior. Topics covered are taken from the areas of problem solving, perception, game playing, knowledge representation, natural language understanding, programs that learn (adaptive programs), expert systems, and programming languages for work in artificial intelligence. This course requires a substantial amount of programming. (Not open to students who have taken an undergraduate course in artificial intelligence.)

Objective

To introduce the students to some of the basic theory and practical techniques in artificial intelligence. In particular, this course teaches about:

1. Search
2. Knowledge representation
3. Machine learning
4. Planning
5. Software agents

Syllabus

1. Introduction
 - a. What is intelligence?
 - b. The history of artificial intelligence
 - c. Intelligent agents
2. Search
 - a. State space representation
 - b. Depth and breath-first search
 - c. Heuristic search
 - d. Adversarial search & Game playing
3. Machine Learning
 - a. Neural networks
 - b. Evolutionary computation
 - c. Reinforcement learning
4. Knowledge Representation
 - a. Production rules

- b. Frames & Semantic networks
 - c. Propositional logic
 - d. Predicate logic
5. Planning
- a. STRIPS & Linear planning
 - b. Partial-order planning
 - c. Decision-theoretic planning

Textbook

Stuart Russell and Peter Norvig. *Artificial Intelligence: A Modern Approach (second edition)*, ISBN 0-13-790395-2, Prentice Hall.