

CSCI460: Introduction to Artificial Intelligence

Course Coordinator

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Other instructors for course

Sven Koenig
Paul Rosenbloom
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Textbooks and other required materials

Artificial Intelligence, A Modern Approach
By Russell & Norvig

Major Topics

1. Intelligent agents
2. Problem solving, complexity metrics
3. Uninformed search (BFS, DFS, Uniform cost, depth-limited, iterative deepening)
4. Informed search (Greedy, A*)
5. Other search (simulated annealing, genetic algorithms)
6. Game playing (minimax, alpha-beta pruning, nondeterministic games)
7. Knowledge-based agents
8. Propositional logic, syntax, semantics, inference, limitations
9. First-order logic (including inference, unification, Goedel's theorem, generalized modus ponens, resolution, forward chaining, backward chaining, situation calculus)
10. Building a knowledge base (ontologies, translation between English and FOL, difficult cases like events, substances, composite objects)
11. Logical reasoning systems (Implementing indexing, retrieval and unification. The Prolog language, Theorem provers. Frame systems and semantic networks)
12. Planning (including STRIPS)
13. Fuzzy logic
14. Neural networks (including Hopfield, perceptrons, backprop)