

**1. Course number and name**

CptS 440: Introduction to Artificial Intelligence

**2. Credits and contact hours**

3 credits, 3 lecture hours

**3. Instructor's or course coordinator's name**

Lawrence Holder

**4. Textbook, title, author, and year**

S. Russell and P. Norvig, 2010. *Artificial Intelligence: A Modern Approach*, (3rd ed.).  
Prentice Hall. (Required)

**5. Specific course information**

- a. *Catalog description*: An introduction to the field of artificial intelligence including search, knowledge representation, reasoning, uncertainty, learning, and perception.
- b. *Prerequisites or corequisites*: Data Structures (CptS 122), Probability and Statistics (Math 212 or 360).

**6. Specific goals for the course**

By the end of the course, students will be able to

- Understand the major areas and challenges of AI
- Apply basic AI algorithms to solve problems (1b, 1d, 1e, 2g, 7c, 7d, 7f)
- Understand ethical issues in AI (4a, 4f)

**7. Brief list of topics to be covered**

- Introduction to AI and intelligent agents
- Uninformed and informed search
- Local search
- Adversarial search
- Introduction to logic and propositional logic
- First-order logic
- Logical inference
- Planning
- Uncertainty
- Probabilistic Reasoning
- Learning and Decision Trees
- Neural Networks, Probabilistic Learning, and Reinforcement Learning
- Natural Language Processing and Natural Language Communication
- Philosophical and Ethical Issues