

CAP 4630– Artificial Intelligence

Credits: 3

Text book, title, author, and year: *Artificial Intelligence – A Systems Approach*, by M. Tim Jones, Jones and Bartlett, 2009.

- a. **Supplemental materials:** none.

Specific course information

- a. **Catalog description:** A broad introduction to the core concepts of artificial intelligence, including knowledge representation, search techniques, heuristics and deduction. Programming in Lisp and possibly other software environments.
- b. **Prerequisites:** COP 3530
- c. **Required, elective, or selected elective:** selected elective

Specific goals for the course

- a. **Specific outcomes of instruction:** By the end of the course students will be able to have an understanding of Artificial Intelligence methodologies and be able to apply these techniques to solving difficult problems.

Brief list of topics to be covered:

- Overview of fundamental concepts of Artificial Intelligence,
- Uninformed search including DFS, BFS, IDS
- Informed search with heuristics including A* search and IDA* search.
- Min-max search
- Alpha beta pruning.
- Knowledge representation
- Connectionist systems including Artificial Neural Networks
- And emergent machine learning including Particle Swarm.
- Evolutionary Systems including Genetic Algorithms, Genetic Programming and Evolutionary Art.
- Philosophical issues relating to both computational and human intelligence.