

COURSE DESCRIPTION

Dept., Number	CSci 531	Course Title	Artificial Intelligence
Semester hours	3	Course Coordinator	Yixin Chen, Assistant Professor

Current Catalog Description

Use of the computer in human problem solving. Game theory, decision trees, Markov decision problems, selected topics.

Textbook

S. Russell and P. Norvig, *Artificial Intelligence: A Modern Approach*, 2nd edition, Prentice Hall, 2003.

References

Class website: <http://www.cs.olemiss.edu/~ychen/courses/CSCI531F07/>

Course Outcomes

Upon successful completion of this course, the students:

1. are able to explain the basic knowledge representation, problem solving, and learning methods of Artificial Intelligence,
2. can develop intelligent systems by assembling solutions to concrete computational problems,
3. understand the role of knowledge representation, problem solving, and learning in intelligent-system engineering, and appreciate the role of problem solving, vision, and language in understanding human intelligence from a computational perspective.

Relationship between Course Outcomes and Program Outcomes

This is a course taken primarily by beginning computer science graduate students. It is sometimes taken by undergraduate computer science students as an elective to enrich their programs. The course outcomes contribute to the program outcomes as follows: (1) to (a), (2) to (c), and (3) to (b).

Prerequisites by Topic

Fundamental concepts of algorithms and data structures and the associated programming techniques (CSci 433 or 502)

Major Topics Covered in the Course

1. Introduction to artificial intelligence (AI) (1 hour)
2. Intelligent agents (2 hours)
3. Search (5 hours)
4. Constraint satisfaction problems and games (6 hours)
5. Uncertainty (2 hours)
6. Probabilistic reasoning (3 hours)
7. Probabilistic reasoning over time (2 hours)
8. Making simple decisions (2 hours)
9. Learning from observations (3 hours)
10. Knowledge in learning (2 hours)
11. Statistical learning methods (7 hours)
12. Reinforcement learning (1 hours)
13. Exams (3 hours)

Assessment Plan for the Course

This is an elective course offered approximately every two years primarily to computer science graduate students. An offering typically has 3 examinations and 6 programming and homework assignments. Outcome 1 is assessed by several exam questions, outcome 2 by two programming projects, and outcome 3 by homework assignments and several exam questions.

How Data in the Course are Used to Assess Program Outcomes (unless adequately covered already in the assessment discussion under Criterion 4)

Estimate Curriculum Category Content (Semester hours)

Area	Core	Advanced	Area	Core	Advanced
Algorithms		2	Software design		
Data structures		1	Concepts of programming languages		