School of Computing
UNIVERSITY OF GEORGIA

Course Information Sheet
CSCI 4550
Artificial Intelligence

Brief Course Description (50-words or less)	An introduction to the fundamental concepts in computer science, including algorithms and logic, and the theoretical foundations in philosophy that define the field of artificial intelligence.
Extended Course Description / Comments	This course is cross-listed with PHIL 4550 and is a 3-credit hour course.
Pre-Requisites and/or Co-Requisites	CSCI 2610: Discrete Mathematics for Computer Science Or PHIL 2500: Symbolic Logic
Required, Elective or Selected Elective	Selected Elective Course
Approved Textbooks (if more than one listed, the textbook used is up to the instructor's discretion)	Author(s): Stuart Russell and Peter Norvig Title: *AI: A Modern Approach* Edition: 3rd ISBN-13: 978-0136042594
Specific Learning Outcomes (Performance Indicators)	This course presents a survey of topics in artificial intelligence most relevant to students studying computer engineering. At the end of the semester, all students will be able to do the following: 1. Represent the environments of decision-making problems including their observability, determinism, continuousness, and other criteria 2. Identify and compare agent types, such as reflex, goal-based, and utility-based 3. Implement uninformed search strategies such as BFS, DFS, depth- limited search, and bidirectional search 4. Implement heuristics in informed search strategies, as well as identify the aspects of a good heuristic 5. Evaluate the effectiveness of local search algorithms, including hill-climbing, simulated annealing, and beam searches 6. Evaluate competitive game outcomes by using minimax algorithms, alpha-beta pruning, and evaluation functions 7. Utilize basic inferencing rules in propositional logic, such as resolution and forward/backward chaining 8. Express propositional statements using quantifiers and functions in First-Order logic 9. Implement Java or written algorithms that evaluate goal-oriented problems using propositional or first-order propositional logic 10. Represent knowledge using constructs such as Ontologies

Program Outcomes

(ABET Specific)

A. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

B. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

C. Communicate effectively in a variety of professional contexts.

D. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

E. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

F. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Relationship Between Student Outcomes and Learning Outcomes

	ABET Learning Outcomes						
Specific Learning Outcomes		**A**	**B**	**C**	**D**	**E**	**F**
	1	●					
	2	●					
	3	●	●				●
	4	●	●				●
	5	●					
	6	●					
	7	●					
	8	●	●				
	9	●	●				●
	10	●					

Major Topics Covered
(Approximate Course Hours)

3 **credit hours = 37.5 contact hours**
4 **credit hours = 50 contact hours**

Note: Exams count as a major topic covered

Intelligent Agent Design (4-hours) Uninformed Search (3.5-hours) Informed Search (3.5-hours) Adversarial Search (3.5-hours) Propositional Logic Syntax (3-hours) Knowledge-Based Agents (1-hour)
Inferencing Rules in Prop. Logic (2-hours)
First-Order Propositional Logic Syntax (3-hours) Inferencing with Quantifiers (1-hour)
Forward and Backward Chaining (2-hours) Knowledge Representation(5-hours) Classical Planning (1.5-hours)

Exams (4.5-hours)

Course Master

Dr. Khaled Rasheed.

Last modified

2/4/2022 by Dr. Khaled Rasheed.