COURSE TITLE: CSCI 483, Section 01, ARTIFICIAL INTELLIGENCE

I. Contact Information

Instructor:	Jose L. Cordova, Ph.D
Electronic mail:	cordova@ulm.edu
Web page:	moodle.ulm.edu
Office:	345 Airway Sciences Bldg.
Office phone:	342-1855
Office hours:	MW 9 - 11 AM, 1 - 2 PM TTh 9 - 11 AM

II. Course Prerequisites: CSCI 305 and CSCI 310

III. Course Description:

3 cr. Study of the computer in context with human thought processes. Heuristic programming; search strategies; knowledge representation; perception; learning; natural language understanding; user interfaces; intelligent systems.

IV. Course Objectives and Outcomes

After the successful completion of the course, the student will be able to:

- Identify and discuss milestones in the history of the field of artificial intelligence
- Identify the main application areas in the field of artificial intelligence
- Demonstrate knowledge of the basic principles, connectives, and semantics of propositional calculus.
- Translate arguments into predicate calculus expressions
- Apply rules of inference to predicate calculus expressions
- Determine whether two predicate calculus expressions can be unified.
- Show the equivalence of propositional calculus expressions using either truth tables or known logical equivalences.
- Construct PROLOG rules to perform both simple and recursive inferences
- Discuss and implement exhaustive state space search algorithms
- Discuss and implement heuristic state space search algorithms
- Apply probabilistic methods to support inference mechanisms
- Discuss the main characteristics and components of production systems
- Design and implement a rule-based system using an expert system shell
- Demonstrate understanding of the issues involved in planning, as well as the relative shortcomings of a state space search approach to solving the problem
- Identify and discuss the characteristics of the main knowledge representation schemes
- Evaluate and write simple LISP expressions
- Discuss the characteristics and application areas of expert systems
- Identify and apply uncertain reasoning techniques in simple inference processes

V. Course Topics

- AI History and Applications
- The Predicate Calculus, PROLOG
- State Space Search
- Heuristic Search
- Stochastic Methods
- Control Algorithms for State Space Search
- Knowledge Representation, LISP
- Strong Method Problem Solving and Expert Systems
- Uncertain Reasoning

VI. Instructional Methods and Activities

Lectures, class discussion, problem solving, programming assignments, in-class exercises.

VII. Evaluation and Grade Assignment

Methods of assessment: exams, quizzes, homework assignments, and programming assignments

Assessment	Point Value	Grading Scale	
Programming assignments	100 points	90 - 100 %	A
Paper(s), Homework, Quizzes	100 points	80 - 89 %	B
Midterm exam	100 points	70 - 79 %	C
Final exam	100 points	60 - 69 %	D
TOTAL	**400 points**	0 - 59 %	F

Undergraduate mid-term grades will be posted on-line for students to view via Arrow. Mid-term grades indicate a student's status at mid-semester only and do not indicate the final performance outcome of a student.

VIII. Class Policies and Procedures

All policies stated in the current ULM *Student Policy Manual & Organizational Handbook* (see *http://www.ulm.edu/studentpolicy/*) will be followed. Additional class policies include:

A. Textbook(s) and Materials:

The university *moodle* system will be used regularly to disseminate course information and materials as well as for submission of assignments.. The required textbook for the course is *Artificial Intelligence*, by George F Luger, 6th edition, Addison Wesley, 2009.

B. Attendance Policy:

Regular attendance and class participation is expected but will not be graded. The attendance regulations published in the current ULM catalog will be followed. The student is responsible for any information, material, and announcements given by the instructor during any missed class period(s).

C. Make-up Policy:

Make-up examinations will be given in extreme circumstances only, as outlined in item 3 of the ULM attendance regulations, provided that the student can document the absence. The student must strive to inform the instructor at the first opportunity after it is known that a test will be missed. Preferably this will be prior to the test. Assignments turned in after the due date and time are subject to a late penalty of 10% of the assignment grade for each day the assignment is late, including holidays and weekends.

D. Academic Integrity:

The ULM policy on Academic Dishonesty (see Page 4 in ULM *Student Policy Manual* -- http://www.ulm.edu/studentpolicy/) will be followed strictly. Exams and quizzes are given under policy A of the Computer Science Policy statement. Programming assignments and other out-of-class assignments shall be completed following policy C of the Computer Science Policy statement, unless otherwise noted by the instructor.

E. Course Evaluation Policy:

Students are expected to complete the on-line course evaluation administered by the Office of Academic Affairs. In an effort to gather additional feedback from students, the instructor may ask students to complete additional course evaluation instruments.

F. Student Services:

Information about ULM student services, such as Student Success Center (http://www.ulm.edu/cass/), Counseling Center (http://www.ulm.edu/counselingcenter/), Special Needs

(http://www.ulm.edu/counselingcenter/special.htm), and Student Health Services, is available at the following Student Services web site *http://www.ulm.edu/studentaffairs/*.

G. Emergency Procedures:

Students are expected to become familiar with the nearest exit in case of an emergency. Should an emergency arise, students should proceed cautiously to the nearest exit.

H. Discipline/Course Specific Policies:

Homework assignments should be regularly completed by students to reinforce and apply concepts presented in class. Although the instructor will not collect homework routinely, students are expected to attempt every homework problem, and consult with the instructor during office hours or at the beginning of the succeeding class meeting concerning difficult homework exercises. The use of computer equipment for purposes not related to class is strictly prohibited. A STUDENT FOUND IN VIOLATION OF THIS POLICY MAY LOSE THE PRIVILEGE OF COMPUTER ACCESS DURING CLASS. The use of mobile phones, pagers, and other electronic equipment for purposes not related to class is prohibited and may result in confiscation of such devices by the instructor. IN PARTICULAR, THE POSSESSION OF SUCH DEVICES WHILE TAKING A TEST WILL BE CONSIDERED A VIOLATION OF THE ACADEMIC HONESTY POLICY.

IX. Tentative Course Schedule

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B. Schedule:

The following is a tentative schedule of topics and test dates. *The instructor reserves the right to adjust the schedule as needed.*

Chapter	Date(s)
1. AI: History and Applications	1/20
2. The Predicate Calculus and PROLOG	1/25 – 2/1
3. State Space Search	2/3 – 2/10
4. Heuristic Search	2/22 – 3/8
Midterm Exam	**Wed, March 10**
6. Control Algorithms	3/15 – 3/17
7. Knowledge Representation	3/22 – 3/24
16. Introduction to LISP	3/29 – 3/31
8. Strong Method Problem Solving	4/12 – 4/21
5. Stochastic Methods	4/26 – 4/28
9. Reasoning in Uncertain Situations	5/3 – 5/5
FINAL EXAM	