Administrative Unit: Computer and Mathematical Sciences Department

Course Prefix and Number: CISS 450

Course Title: Artificial Intelligence

Number of: Credit Hours: 3 Lecture Hours: 3 Laboratory Hours: 0

Catalog Description: Concepts and theories of intelligent computer systems. Issues of perception, learning, problem solving and knowledge representation discussed. Programming in a list processing language will be required. Applications to game playing, theorem improving, expert systems, language understanding. Prerequisites: CISS 350 or 358. Offered Fall.

Prerequisite(s)/Corequisite(s): CISS 350 or 358.


Course Objectives:

• To learn automated reasoning and theorem proving theory.
• To understand expert system design and machine learning issues.
• To explore search strategies and rule-based deduction systems.
• To investigate knowledge representation schemes.
• To learn a language and programming techniques for artificial intelligence.
• To investigate language understanding.

Measurable Learning Outcomes:

• Explain theorem-proving and automated-reasoning systems.
• Develop state space representations for problem domains.
• Utilize heuristic and recursive search techniques.
• Design rule-based expert systems.
• Discuss model-based and case-based reasoning.
• Develop Bayesian and monotonic reasoning models.
• Explain knowledge representation systems.
• Program effectively in Lisp or Scheme.

Topical Outline (major areas of coverage):

• History and application
• Game playing
• Automated reasoning and theorem proving
• Predicate calculus
• State space design and searching
• Expert systems
• Knowledge representation
• AI programming techniques

Recommended maximum class size for this course: 20

Library Resources: Online databases are available at http://www.ccis.edu/offices/library/resources.asp. You may access them from off-campus using your eServices login and password when prompted.

Prepared by: Lawrence West

Name ____________________________ Signature ____________________________

Date: September 12, 2005

NOTE: The intention of the master syllabus is to provide an outline of the contents of this course, as specified by the faculty of Columbia College, regardless of who teaches the course, when it is taught or where it is taught. Faculty members teaching this course for Columbia College are expected to facilitate learning pursuant to the course objectives and cover the subjects listed in the topical outline. However, instructors are also encouraged to cover additional topics of interest so long as those topics are relevant to the course’s subject. The master syllabus is, therefore, prescriptive in nature but also allows for a diversity of individual approaches to course material.

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