This course introduces the basic concepts and techniques of artificial intelligence. Knowledge representation: predicate logic and inference, semantic networks, scripts and frames, and object-oriented representation. Searching: such as A*, hill-climbing, minimax and alpha-beta pruning. Planning: the frame problem and the STRIPS formalism, representation schemes and planning strategies. Neural networks: learning algorithms, neural architecture and applications. Natural language processing. Knowledge acquisition and expert systems: properties, techniques and tools of expert systems.

Grade Descriptor:

**A**
EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

**B**
GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

**C**
FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.

**D**
MARGINAL - performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

F

FAILURE - performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

有關等級說明的資料，請參閱英文版本。

Equivalent Offering:
Units: 3 (Min) / 3 (Max) / 3 (Acad Progress)
Grading Basis: Graded
Repeat for Credit: N
Multiple Enroll: N
Course Attributes:

Topics:

COURSE OUTCOMES

Learning Outcomes:

Students will be able to:
1. Use agents to model AI problems;
2. Use search techniques such as A* to search for optimal solutions for AI problems and to play games;
3. Use various logic to represent knowledge and to do reasoning and build expert systems;
4. Use computer learning techniques to acquire real life knowledge in an appropriate representation model (e.g. decision tree and neural networks);
5. Derive learning rules from first principle;
6. Solve real life problems (e.g. classification and prediction) by such models;
7. Estimate complexity of AI algorithms and prove theorems by contradiction and other techniques;
8. Use computer vision techniques such as edge detection to extract features.

Course Syllabus:

This course introduces the basic concepts and techniques of artificial intelligence. Knowledge representation; predicate logic and inference, semantic

Assessment Type:
- Essay test or exam: 55%
- Others: 45%

Feedback for Evaluation:
1. Results of assignments and examination;
2. Course evaluation and questionnaire;
3. Reflection of teachers;
4. Question-and-answer sessions during class;
5. Student consultation during office hours or online

Required Readings:

Recommended Readings:

OFFERINGS
1. CSCI3230 Acad Organization=CSD; Acad Career=UG

COMPONENTS
- LEC : Size=30; Final Exam=Y; Contact=3
- TUT : Size=30; Final Exam=N; Contact=1

ENROLMENT REQUIREMENTS
1. CSCI3230
   - Enrollment Requirement Group:
     Not for students who have taken ESTR3108. Prerequisite: CSCI2100 or 2520 or ESTR2102 or equivalent.
   - New Enrollment Requirement(s):
     Pre-requisite = no change
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