Introduction:
This course introduces, at a fundamental level, how knowledge is acquired, represented, and stored; how intelligent behavior is generated and learned. This course also explores various problem-solving paradigms. In addition, it covers applications of decision trees, neural networks, support vector machines and other learning paradigms.

Learning Objectives:
The goal of this course is to introduce students to the basic knowledge representation, problem solving, and learning methods of artificial intelligence (AI). For undergraduate students, the expectation is to understand the algorithmic aspect of AI. Graduate students are expected to understand the mathematical aspects of the problem-solving and learning paradigms in addition to implementation of a system.

Outcomes:
Upon completion of this course, students should be able to explain the basic knowledge representation, problem solving, and learning methods of Artificial Intelligence; develop intelligent systems by assembling solutions to concrete computational problems; 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.

Homework and Projects:
Approximately 5 homework and 2 projects will be assigned. Assignments will be judged on both correctness and clarity. The homework assignments for graduate students will be slightly more challenging than those for undergraduate students. A few research articles on recent progress in the field of AI will be given as reading assignments for graduate students. Graduate students are required to read the articles, write reports summarizing the contribution of each article, and make comments on the possible directions that the work may be improved or worth of further investigation.

Exams:
There will be two mid-term exams and a final exam.
Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>5%</td>
</tr>
<tr>
<td>Homework &amp; Reading Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Projects</td>
<td>20%</td>
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<tr>
<td>Midterms</td>
<td>30%</td>
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<tr>
<td>Final</td>
<td>25%</td>
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</tbody>
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A: \[\geq 90\]  B: \(<90, \geq 80\)
C: \(<80, \geq 70\)  D: \(<70, \geq 60\)
F: otherwise

Topics To Be Covered

- Introduction: Ch. 1
- Intelligent Agents: Ch. 2
- Search: Ch. 3, Ch. 4
- Constraint Satisfaction Problems and Games: Ch. 5, Ch. 6
- Uncertainty: Ch. 13
- Probabilistic Reasoning: Ch. 14
- Probabilistic Reasoning over Time: Ch. 15
- Making Simple Decisions: Ch. 16
- Learning from Observations: Ch. 18
- Knowledge in Learning: Ch. 19
- Statistical Learning Methods: Ch. 20
- Reinforcement Learning: Ch. 21

Academic Integrity

All students in CSCI 531 Section 1 are expected to conduct themselves in a professional manner according to the Honor Code of the School of Engineering, the Information Technology Appropriate Use Policy, the *M Book*, and any other relevant policies.

"The Honor Code shall apply to all students, both undergraduate and graduate, registered in and/or seeking degrees through the School of Engineering. The Honor Code shall be understood to apply to all academic areas of the School such as examinations, quizzes, laboratory reports, themes, computer programs, homework, and other possible assignments. Only that work explicitly identified by the class instructor not to be under the Honor Code is excluded. The intent of the Honor Code is to recognize professional conduct and, thus, it shall be deemed a violation of the Honor Code to knowingly deceive, copy, paraphrase, or otherwise misrepresent your work in a manner inconsistent with professional conduct."

Disability Services at The University of Mississippi

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the office of Disability Services at 915-7128 as soon as possible to better ensure that such accommodations are implemented in a timely manner.