Objectives
The primary objective of this course is to introduce the fundamental concepts of knowledge-based systems, focusing on rule-based systems, and to provide experience in designing and implementing these systems. The secondary objective is to explore the application of knowledge-based systems to a variety of areas, such as space systems, telecommunications, business, healthcare, and models of cognition. Among the topics to be covered are: logic and theorem proving, pattern matching, deduction systems, reaction systems, forward and backward chaining, knowledge acquisition, uncertainty management, and explanatory interfaces. Students will have the opportunity to implement a simple knowledge-based system during the course of the semester using a knowledge-based tool such as CLIPS or JESS.

Recommended (Helpful, but not required)
Knowledge of a higher level programming language, such as Java, C++, Prolog, or Lisp
CMSI 677  Introduction to Artificial Intelligence

Expected Work
Readings prior to lectures and participation in class discussion.
Programming and written homework assignments to reinforce lectures and readings.
Oral presentations on successful applications of knowledge-based system technology (based upon assigned readings).
Term project (completed on an individual basis) in which the student develops requirements for, implements, and tests a simple knowledge-based system using CLIPS, JESS, or SOAR.

Exams
Two midterms.

Text and Required Materials

Supplementary materials as posted on course website or handed out in class.

Additional References
Sample Supplemental Readings

Grading
Your final grade will be weighted as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>30%</td>
</tr>
<tr>
<td>Midterm #1</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm #2</td>
<td>20%</td>
</tr>
<tr>
<td>Assignments</td>
<td>15%</td>
</tr>
<tr>
<td>Presentations of applied KBS (case study)</td>
<td>15%</td>
</tr>
</tbody>
</table>

Tentative

Homework will be assigned and graded. As time permits, homework will be reviewed in class on the due date. When current events related to knowledge-based systems are in the news, student will have the opportunity to give oral and written reports on the events.

An incomplete will be granted only when the student requesting the incomplete has completed 80% of the coursework, and has at least a B average in the coursework completed.

Refer to the Teaching Philosophy and Course Policies handout for additional information.

Office Hour/Contact Points
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