

COURSE SYLLABUS
CS 470.01 / 572.01
Special Topics in Computer Science
Dr. Ken Hartness
Cognitive Computing
3 credit hours
Spring 2008

Location of Lecture: AB1 206

Meeting Times: 12:00 p.m. – 12:50 p.m. MWF

Office: AB1 212F

Phone: (936) 294-3524

Office Hours: 9:30MW, 1MW, 3:30MW, 2TTh, 9Th,

E-mail: csc_kth@shsu.edu

URL: http://www.shsu.edu/~csc_kth

Course Description: The course presents an overview of artificial intelligence and its methods for solving problems. Basic algorithms for finding solutions to problems or adaptively improving responses to situations will be discussed. Expert systems, genetic algorithms, and intelligent agents are among the areas that will be explored.

Prerequisites: Two or more advanced CS classes (ideally, CS 334 and, perhaps, CS 362)

Course Objectives: The student will become aware of the numerous algorithms, learning methods, etc., that fall under the heading of Artificial Intelligence. The student will select one of these areas to study in greater depth as part of a semester project. The student will become familiar with a number of common artificial intelligence development tools. The student will hone skills in the writing of professional papers.

Text Book: *Artificial Intelligence: A Modern Approach*, 2nd ed., by Stuart Russell and Peter Norvig

Optional materials: Development environments may be found for download from the Internet (e.g., CLIPS and PDPROLOG). Students will be provided with basic information necessary to understand programming languages like Lisp and Prolog and the CLIPS expert system shell, although they may find references to these languages useful.

Attendance policy: Students are responsible for all material covered in class. Absences should be cleared sufficiently in advance for the student to complete work **before** the date of the absence. A student who experiences an unexpected and excused absence should contact the instructor as soon as reasonably possible and provide written evidence (e.g., clinic or doctor's note) to justify alternative arrangements for submitting work. Otherwise, late work will be ignored.

Assignments: Short answer homework, lab exercise reports, and hand-simulation of algorithms, along with any short quizzes or in-class exercises, will be counted as homework; some work may be handled as extra credit at the discretion of the professor. This may include homework shared with the class and graded as class participation. Two papers will be included in the final grade under their own categories. The 15-page paper may be replaced with a project and project report.

Exams: Two exams and a comprehensive final exam will be used to evaluate your understanding of the material. An optional make-up exam may be taken at the end of the semester to replace exam 1 or exam 2. Exams may include multiple-choice, matching, short answer, essays, and problems similar to homework assignments. Essay questions may require students to demonstrate an understanding of how and when certain techniques should be used.

Grading Policy: Homework and exams are averaged separately, and then combined with writing or project grades according to the following weights:

Homework and programs	15%	
Exams	60%	
AI Application paper	6%	
Rough draft/Discussion	1%	
Final draft	5%	
Semester paper/project	19%	
Oral presentation	3%	
Rough draft	3%	
Final draft (15-pages)	13%	
Program option		8%
Paper (5-pages)		5%

The AI application paper must describe an area of AI, describe a specific application in this area, and include a short essay of your impressions, thoughts, etc. The essay portion should use good English but may be written in a casual style. The overview and description of an application should be more formal with endnotes indicating the sources of your information. Sources should primarily be peer-reviewed (part of conference proceedings or journal) or part of an edited book; the specific application may be described on a web site although other sources are preferable.

The semester paper/project may be an approximately 15-page formal report on an area of AI and how several systems utilize this area to create more intelligent systems. This report must pull together information from a number of academic book and journal sources, in addition to the sources describing example systems. Alternatively, the student may select a project with instructor approval, develop a working version of the project, and provide a shorter paper that describes the project and briefly summarizes the area of AI it represents. The shorter paper should still include references to at least one academic-quality, published article as well as at least one other source of information.

Academic dishonesty: All work must be your own unless explicitly cleared by the instructor in writing. My lectures and examples from class are in the public domain. All other ideas and algorithms incorporated into your work which are not entirely of your own devising must be referenced in the work to give credit to the original source. If group work is allowed, you must document the contribution of each individual in the group. Any type of cheating, especially clear cases of academic dishonesty, may result in all students involved receiving a grade of F for the semester; at the least, part or all of an assignment may be rejected as a warning. (See the University Code of Conduct, <http://www.shsu.edu/students/guide/dean/codeofconduct.html>, for more information.)

Classroom Rules of Conduct: In compliance with the University Code of Conduct, students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Please turn off or mute your cellular phone and/or pager before class begins. Students are prohibited from using tobacco products, making offensive remarks, using inappropriate language, reading newspapers, socializing at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Students will be warned, then directed to leave the class and/or report to the Dean of Students for disciplinary action in accordance with university policy.

Visitors in the Classroom: Occasional visiting of classes by responsible persons is allowed with prior arrangement with the instructor, as long as it does not interfere with the registered members of the class or the educational process.

Americans with Disabilities Act: It is the policy of Sam Houston State university that no otherwise qualified disabled individual shall solely by reason of his/her handicap, be excluded from the participation in be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. The Counseling Center verifies the need for assistance and provides a request for accommodations to be shared with the professor. Students requesting assistance with academically-related problems stemming from individual disabilities should contact the Director of the Counseling Center (Lee Drain Annex, 936-294-1720) in a timely manner so that a suitable learning environment is attained early in the semester.

Religious Holidays: University policy states that a student who is absent from class fro the observance of a religious holy day may take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. Whenever possible, the student should make arrangements wit the instructor at least one week in advance (see attendance policy).