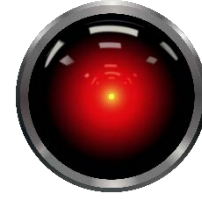CS 550 – Artificial Intelligence, schedule #21074
3 credit hours, Tu 4:00-5:15 PM Th 4:00-5:15 PM COM-207
Professor Roch
Office hours: Tu 3:00-3:50, Th 5:30-6:20, GMCS-530,
Tel: 619 594 5830, Mail: marie●roch [a_t] sdsu●edu
Course web site: roch.sdsu.edu

Materials:
   Required: Russell, S. J., and Norvig, P. (2010). *Artificial Intelligence: A Modern
         Approach* (3^e, Prentice Hall, Upper Saddle River).
   Optional: Programming in this course is in Python. Optional text:
         Martelli, A. (2006). Python in a nutshell, O'Reilly, Sebastopol, CA or
         Lutz, M. (2013). Learning Python, O'Reilly Media, Sebastopol, CA.

Course Information:
Catalog description: Heuristic approaches to problem solving. Systematic methods of
   search of the problem state space. Theorem proving by machine. Resolution principle
   and its applications.

Prerequisites: CS 310, Mathematics: Discrete Math (245) or Mathematical Logic (523)

Goals:
After successful completion of the course, students will be able to:

   - Construct intelligent agents capable of interacting with their environments.
   - Understand and implement heuristic searches for problem solving and game
     playing (adversarial search)
   - Understand first-order logic and its application to theorem proving.
   - Analyze constraint satisfaction problems and resolve them through search.
   - Understand and be able to apply machine learning algorithms

Relationship to CS Program Course Outcomes
CS 550 addresses the following CS Program course outcomes:
   a) An ability to apply knowledge of computing and mathematics
   b) An ability to analyze a problem, and identify and define the computing
      requirements appropriate to its solution
   c) An ability to design, implement, and evaluate a computer-based system, process,
      component, or program to meet desired needs
   d) An ability to function effectively on teams to accomplish a common goal
   h) Recognition of the need for and an ability to engage in continuing professional
      development
   i) An ability to use current techniques, skills, and tools necessary for computing
      practice
   j) An ability to apply mathematical foundations, algorithmic principles, and
      computer science theory in the modeling and design of computer-based systems
      in a way that demonstrates comprehension of the tradeoffs involved in design

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choices.

   k) An ability to apply design and development principles in the construction of software systems of varying complexity.

Topics Covered: intelligent agents, theorem proving, search, machine learning, constraint satisfaction problems

Course Schedule:
A week by week schedule may be found on the course web site as well as a Google calendar that lists due dates for assignments. Approximately six problem sets will be assigned with deadlines varying from one to two weeks per assignment depending upon the complexity. Problem sets consist of a combination of short answer prose, quantitative problems, and programming. Work must be shown for quantitative problems, and programs must use appropriate levels of abstraction and be well commented. See the course FAQ for guidelines on appropriate program structure. Students are encouraged to use the pair programming paradigm for programming assignments which will be discussed in course.

A midterm will be given on Th March 8th, and a non-cumulative final will be given on Tu May 8th from 3:30 to 5:30 in our normal classroom.

Grading policies:
  Assignments are due at the start of class on the date posted in the course calendar. Assignments may be submitted up to one class period late with a penalty of 10%.

  This course uses a coarse grading system. It is very difficult to justly and systematically determine that one answer is worth N points and another is worth N$\pm\varepsilon$. Consequently, points are assigned based upon broad categories that indicate your mastery of the concept:

A+ - Excellent	B – Mostly right	VE – Valiant effort
A - Good	C – Right track	F – Unacceptable

  Weighting of grades: Assignments 36%, Exam I 32%, Exam II 32%

  IMPORTANT NOTE: It is departmental policy that you must complete *all assignments with an average grade of 70%* (add up all the points from your assignments and divide by the total number of points). Failure to do so will result in a failing grade.

Accommodation of disabilities
  If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.

Academic Honesty:

You are free to discuss ideas and strategies for approaching problems with others, but students must complete work on their own (except when using the pair programming methodology). Using other people's work in any form (i.e. the web, other students) will result in disciplinary action and failing the course. This includes things such as paraphrasing or copying directly from web sources such as Wikipedia.

Plagiarism is unacceptable and will not be tolerated. You are responsible for understanding plagiarism; the library has a tutorial at http://library.sdsu.edu/guides/tutorial.php?id=28 that is highly recommended. If you have any questions about plagiarism after taking the tutorial, I will be happy to assist you.