

CMSI 677 INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Spring 2009 – 3.0 units

Tuesday 6:30 – 9:30 p.m. – Doolan 222

Dr. Stephanie E. August -- saugust@lmu.edu

Course Description

Objectives

The primary objective of this course is to study the fundamental concepts needed to attain human-level intelligence in computer systems, and to provide experience in working with these concepts through assignments and/or programming exercises. Topics to be selected: problem-solving methods, heuristic search, game playing; knowledge representation, symbolic reasoning, computational models of virtual humans; and various topics in machine learning, such as inductive learning algorithms, neural networks, and genetic algorithms. The secondary objective of the course is to learn how to research and review advances in the field, and to consider the application of artificial intelligence techniques to real-world problems.

Required

Knowledge of a higher level programming language, such as C++, Prolog, or Lisp.

Expected Work

This will be an interactive class, and students are expected to participate in class discussions.

Weekly readings from the text will be assigned. In addition, supplemental readings will be assigned, and written reviews of each of these will be due at the beginning of class on the day they are due. All readings should be completed prior to lecture.

Written and oral homework will be assigned to reinforce lectures and readings. Assignments will include problem sets, programming assignments, and oral reports. Assignments will be collected and graded.

Students will complete a group project during the course of the term, with details to follow. A conference-style presentation on the project will be made to the class at the end of the term.

Students are responsible for all the material in the assigned readings, whether or not it is covered in class, and for all material presented in class, whether or not it is in the assigned readings.

Exams

Two midterms.

Text and Required Materials

Artificial Intelligence: A Modern Approach. Stuart J. Russell and Peter Norvig. 2nd Edition. Prentice-Hall, Englewood Cliffs, NJ, 2003.

Additional References

Artificial Intelligence. Elaine Rich and Kevin Knight. 2nd edition. McGraw-Hill, Inc., New York, 1991.

Artificial Intelligence. Patrick Henry Winston. 3rd edition. Addison-Wesley, Reading MA, 1992.

Artificial Intelligence: Structures and Strategies for Complex Problem Solving. George F. Luger. 4th ed. Addison-Wesley, 2002.

Computation and Intelligence: Collected Readings. Edited by George F. Luger. MIT Press, 1995.

Concept Formation: Knowledge and Experience in Unsupervised Learning. Edited by Douglas H. Fisher, Jr., Michael J. Pazzani, and Pat Langley. Morgan Kaufmann Publishers, Inc., San Mateo CA, 1991.

The Elements of Artificial Intelligence. S.L. Tanimoto. Computer Science Press, New York NY, 1987.

Heuristics. Judea Pearl. Addison-Wesley, Reading MA, 1984.

Principles of Artificial Intelligence. Nils Nilsson. Tioga Publishing Co., Palo Alto CA, 1980.

Readings in Artificial Intelligence. Bonnie Webber and Nils Nilsson. Tioga Publishing Co., Palo Alto CA, 1981.

Readings in Knowledge Representation. Brachman, Hector Levesque. Morgan Kaufmann, Los Altos CA, 1985.

Grading

Your final grade will be weighted as follows:

Assignments	30%
Project	20%
Midterm #1	25%
Midterm #2	25%

Homework will be assigned and graded. As time permits, homework will be reviewed in class on the due date. *Assignments, projects, and papers are due at the beginning of class. Late work will only be accepted by prior arrangement.*

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

Office Hours/Contact Points

Office Hours: Tuesday, 5:20-6:20 p.m.

Wednesday, 9:30 a.m. - noon (with some exceptions) plus 1:00-2:45 p.m.
and *by appointment.*

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