Syllabus
COSC 159: Fundamentals of Artificial Intelligence
Spring 2003
Call #65468

http://www.mscs.mu.edu/~cstruble/class/cosc159/spring2003

Instructor: Craig A. Struble, Ph.D.

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Office Hours:	5:15–6:15 p.m. MW, 5:45–6:45 p.m. TuTh, and by appointment. On TuTh, office hours will be held in the BRC at MCW.
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Class Meets: 3:50–5:05 p.m., MW, CU137

Overview

Artificial intelligence (AI) is one of the oldest disciplines in computer science. A primary goal of AI is to build intelligent entities. We will investigate what it means to be intelligent and see the contributions AI has made to the field of computer science.

The goal of this course is to provide a general overview of the AI discipline. We will cover several topics including:

- Searching: breadth first, depth first; heuristic search; A^*-algorithm; hill-climbing; simulated annealing
- Logical reasoning: first-order logic; inferencing; resolution; logic programming; theorem provers
- Planning: Representation of states, actions, goals, and plans; partial-order planner
- Uncertainty: Utility theory; decision theory; basic probability; Bayes' rule; belief networks
- Learning: Inductive learning; decision trees; information theory

In addition to the theoretical concepts, we will implement several projects that incorporate the techniques covered in class.

Prerequisites

COSC 152 Programming Languages

Textbook and References

Required

- Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach*, Second Edition, 2003, Prentice Hall, ISBN 0-13-790395-2.

Optional

Additional reference material will be available on the course web site and placed on reserve in the library.

Grading

Your grade will consist of the following components, weighted as shown:

Homework	30%
Final Project	20%
Midterm Exam	20%
Final Exam	25%
Intangibles	5%

This semester, I will be using the following grading scale to assign letter grades. I recommend reading my *grading philosophy*, which is available on my web site, to understand why I have chosen the following grading scale. Grades for each assignment, exam, etc. will be curved to fit this grading scale.

Range	Letter Grade
[90–100]	A
[80–90)	AB
[70–80)	B
[60–70)	BC
[50–60)	C
[40–50)	CD
[30–40)	D
[0–30)	F

Writing Expectations

Good writing skills are essential for effective communication of your ideas. All work submitted in this class is expected to be in well written English. If your writing is of extremely poor quality, you will be assessed a 10 point deduction and asked to rewrite and resubmit your work before I grade it.

You should obtain help from the Ott Memorial Writing Center before resubmitting your work. Visit http://www.marquette.edu/writingcenter/ for more information.

Homework Assignments

Homework assignments consist of short answer questions, reports, computational problems, and short programming assignments related to the material in the book and discussed in class. You will be given 1–2 weeks to complete a homework assignment. Homework solutions must be prepared neatly. Poorly prepared (i.e., messy) homework solutions will have points deducted; the instructor will not attempt to decipher messy work.

Unless otherwise specified, homework assignments are to be completed individually. Each assignment is graded on a 100 point scale.

Programming Assignments

Unless otherwise specified, programming assignments in the homework may be written in the programming language of your choice. All programs must be well designed, efficient, and easy to use. Source code must be well documented, be well organized, use consistent naming conventions for variables; classes; and methods, and be visually appealing (e.g., through proper indentation, lines < 80 characters in length, etc.).

We will have a couple of assignments exploring the LISP and PROLOG languages. Information on these languages will be provided in class or on reserve in the library.

Exams

There will be one midterm and one final exam. Questions may be posed in any form, such as short answer, multiple choice, or computational problems. The final exam will be comprehensive, but may emphasize the material covered after the midterm exam. The dates and times for the midterm and final exam are shown below.

Exam	Date and time
Midterm	Wednesday, March 5, 3:50 p.m.
Final	Thursday, May 8, 10:30 a.m. –12:30 p.m.

Final Project

There will be a final project for this course. The project should demonstrate your understanding of AI fundamentals by applying AI techniques covered in class to a challenging problem. Your problem with a PEAS analysis and suggested approach for solving the problem is due by Wednesday, March 26. The due date of the final project implementation and report is Wednesday, April 30.

More specifics on the final project will be given during the semester. I recommend identifying potential problems during the semester and visiting with me well before the March 26 deadline.

Intangibles

A small portion of your grade consists of items not easily measured and categorized. These include things like class participation, meetings with the instructor, keeping up with the reading, etc.

Late Policy

Assigned work in this course must be turned in at the beginning of class by the specified due date. Late work will **not** be accepted.

Work may NOT be submitted via email unless specified otherwise.

Attendance Policy

While attendance at lecture is optional, it has been my experience that there is a direct correlation between attendance and the overall grade received in this course. If you miss class, you are responsible for finding out what you missed from a classmate, including notes and assignments. Requests from absent students for notes or for meetings to discuss what was missed will be ignored. Absences on days when an assignment is due or an exam is scheduled must be accompanied by official documentation in order to make up the work or exam.

Academic Honesty

All students are expected to adhere to the standards of student conduct as described in the *Community Expectations* section of the student handbook.

Homework assignments, programming projects, and tests are intended to reflect individual effort in the course. Students may discuss homework assignments and programming projects in a general way; i.e., discussing the *nature* of the assignment or providing clarifications. Sharing source code, pseudo-code, or homework solutions is strictly prohibited, unless otherwise stated.

You are **ENCOURAGED** to refer to outside material such as journals, web pages, and books. Do not feel guilty about using outside material; just make sure that you cite your references. Furthermore, you must write your solutions in your own words. It is not acceptable to directly copy material from another source. **Failure to properly cite your references may result in a charge of plagiarism. Give proper credit where credit is due!**

Chapters Covered

Chapters 1–4, 6, 7–9, 11, 13, 14, and 18 in Russell and Norvig will be covered. Materials from other chapters may be included given enough time and interest.