CSE 431. Intelligent Agents
Fall 2007

Professor Jeff Heflin

Course Description:
Intelligent agents are software programs that can sense their environment, choose rational actions based on their percepts, and execute these actions. If an agent does all of this without the aid of a human, then it is generally considered autonomous. Often, agents interact with other agents, either by cooperating or competing with each other; such environments are called multiagent systems. Agents can be embedded in completely electronic environments such as the Web or a simulation, or may actually be robots "living" in the real world. The potential applications of agents are numerous -- including web search assistants, travel advisors, electronic secretaries, bidders in on-line auctions, tutoring systems, and actors in games or simulations. The course will cover the underlying theory of agents, the common agent architectures, methods of cooperation, and the potential applications for agents. In order to gain a better understanding of the concepts, students will construct their own agents for solving different types of problems.

Course Web Page: http://www.cse.lehigh.edu/~heflin/courses/agents-2007/

Prerequisites: CSE 327 or equivalent. Programming proficiency (or ability to self-learn) Java and C/C++.

Time and Location: TTh 10:45am - noon, Whitaker 207

Textbooks:
- **Required:** An Introduction to MultiAgent Systems by Michael Wooldridge. ISBN 0-471-49691-X
- **Recommended:** Artificial Intelligence: A Modern Approach, Second Edition by Stuart Russell and Peter Norvig. ISBN 0-13-790395-2 *(especially recommended for students who have not taken CSE 327 at Lehigh)*

Instructor Information
    E-mail: heflin@cse.lehigh.edu
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    Office: Packard Lab 330
    Office Hours: M 11:10am-12pm, Th 1:30-3pm and by appointment

Grading:

Homeworks (2)	20%
Programming Projects (3)	45%
Paper evaluation	10%
Exam	25%

Homework will consist of written assignments with multiple questions, two of the programming assignments will be done individually, and one will be in teams. The paper evaluation will be a written summary and critique of a research paper. The exam will be held in class at some point near the middle of the semester.

I will use the following base scale for assigning letter grades. This scale gives the minimum grade you could receive for a given score. Depending on the performance of the entire class, I may adjust the scale

so that you will receive a higher grade. Note, for the purposes of this scale, all fractional grades are rounded down.

92-100: A	82-87: B	72-77: C	62-67: D
90-91: A-	80-81: B-	70-71: C-	60-61: D-
88-89: B+	78-79: C+	68-69: D+	0-59: F

Late Work Policy:
Late work will be docked one letter grade (10% of its total value) for each 24 hour period that it is late. No work will be accepted more than five days late. Exceptions will only be granted if an extenuating circumstance can be proven to the instructor's satisfaction.

Academic Integrity:
All graded work is expected to be your own, unless the instructor has authorized collaboration in writing. In particular, you are not allowed to ask anyone but your professor for specific help with your homework or programming assignments. However, you are free to discuss the topics and concepts of the course with your classmates, as long as you do not discuss the specifics of any assignment. If you are unsure if a particular form of aid is allowed, then check with the professor first. Violation of this policy could result in failure of the course.

Accomodations for Students with Disabilities:
If you have a disability for which you are or may be requesting accommodations, please contact your professor and the Office of Academic Services (University Center, Room C212 or call 610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Schedule:
This class schedule is only a rough guideline and may change depending on the pace at which we complete the material. All reading, homework and project assignments will be announced both in class and on the course web page.

Week	Topic	Reading
8/27	Agents overview	Ch. 1-2
9/3	Deductive reasoning agents	Ch. 3
9/10	Practical reasoning agents	Ch. 4
9/17	Reactive and hybrid agents	Ch. 5
9/24	Multiagent interactions	Ch. 6
10/1	Cooperation and coordination	Ch. 9
10/8	Cooperation and coordination *(cont.)* *Pacing break Oct. 8-9*	
10/15	Reaching agreements	Ch. 7
10/22	Communication	Ch. 8
10/29	Selected topics	TBD
11/5	Logics for multiagent systems	Ch. 12
11/12	Applications **Exam on Nov. 13**	Ch. 11
11/19	Methodologies *Thanksgiving break Nov. 21-25*	Ch. 10
11/26	Selected topics	TBD
12/3	Selected topics	TBD