

CSE 497-012. Intelligent Agents

Fall 2004

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/>

Prerequisites:

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

Time and Location:

TTh 9:20-10:35am, Maginnes 104

Textbooks:

- **Required:** An Introduction to MultiAgent Systems by Michael Wooldridge. ISBN 0-471-49691-X
- **Optional:** Artificial Intelligence: A Modern Approach 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

Phone: 610-758-6533

Office: Packard Lab 330

Office Hours: Mon. 2-3pm, Wed. 11:10am - 12pm, and by appointment

Grading:

Homeworks (2)	20%
Programming Projects (3)	50%
Exam	30%

Late Work Policy:

Late work will be docked one letter grade (10% of its total value) for each day 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 the instructor 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. Any violation of this policy could result in failure of the course.

University Policy on 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, Room 212, University Center or call (610-758-4152) as early as possible in the semester. University policy states that you must notify your professor seven (7) days prior to the exam.

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
8/23	Agents overview	Ch. 1-2
8/30	Deductive reasoning agents	Ch. 3
9/6	Practical reasoning agents	Ch. 4
9/13	Reactive and hybrid agents	Ch. 5
9/20	Multiagent interactions	Ch. 6
9/27	Reaching agreements	Ch. 7
10/4	Communication <i>Pacing break 10/7-10/8</i>	Ch. 8
10/11	Cooperation and coordination	Ch. 9
10/18	Cooperation and coordination (continued)	
10/25	RoboCup	TBD
11/1	Logics for multiagent systems Exam on 11/4	Ch. 12
11/8	Selected topics	TBD
11/15	Applications	Ch. 11
11/22	Selected topics <i>Thanksgiving break 11/24-11/26</i>	TBD
11/29	Methodologies	Ch. 10