

Fayetteville State University
College of Basic and Applied Science
Department of Mathematics and Computer Science
CSC 434-01 – Artificial Intelligence (Hybrid Course)
Spring 2012

I. Locator Information

Instructor: Dr. Michael Almeida

Course # and Name: CSC 434 – Artificial Intelligence

Day and Time Class Meets: R 3:45 – 5:00 pm

Room: SBE 221

Semester Credit Hours: 3

Office Hours: M 10:00 am – 4:00 pm, TR 5:00 – 6:00 pm, & by appointment

Total Contact Hours for Class: 45

Office Location: SBE 340

Email address: malmeida@uncfsu.edu

Office Phone: 672-1161

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail.

Rules and regulations governing the use of FSU email may be found at

<http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf>

II. Course Description

An introduction to the history, goals, social impact, and philosophical implications of artificial intelligence. Topics include problem representation as state spaces, search, logic systems, semantic networks, frames, and neural networks. Identification of application areas such as natural language processing, expert systems, robotics, planning, and vision.

Prerequisites: A grade of “C” or better in CSC 207

III. Disabled Student Services

In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. Textbook

Russell, Stuart & Norvig, Peter (2010) *Artificial Intelligence – A Modern Approach, 3rd Edition*. Prentice-Hall, ISBN: 987-0-13-604259-4.

New and used copies of the textbook are available at the bookstore and on the internet.

Some Prolog programs will be used in this course, so you will need to be able to run Prolog programs on your computer. *SWI-Prolog* can be downloaded free at: <http://www.swi-prolog.org/download/stable> (be sure to select **.pl** as the extension when installing)

V. Student Learning Outcomes

Upon completion of this course, students will be able to:

1. describe the different types of describe the different types of agents and task environments.
2. describe and use search methods for problem solving.
3. create heuristic evaluation functions for various types of problems.
4. use methods for solving constraint satisfaction problems.
5. understand basic techniques for game playing.
6. understand first-order logic as a basis for knowledge representation.
7. use forward and backward chaining inference techniques.

VI. Course Requirements and Evaluation Criteria

a. Final grades are assigned as follows:

A: 90-100

B: 80-89

C: 70-79

D: 65-69

F: < 65

- b. Attendance Requirements – Students are expected to keep up with the readings and the exercises.
- c. The course grade is based on: eight homework assignments (9% each), a midterm exam (14%) and a final exam (14%).
- d. Policy on Late Assignments - Each assignment must be submitted on time unless you have a valid excuse. Up to five points may be deducted from your assignment grade for each day the assignment is overdue.
- e. Dishonesty on graded assignments will not be tolerated. Although students may discuss assignments with one another, they must neither give nor receive excessive help. Students learn by doing things themselves! Having access to another student's work on the system is definitely not allowed. Duplicate answers are not acceptable. Each student is responsible for disposing of printouts safely (Do NOT simply throw away printouts in a trash can where they can easily be retrieved by another person.) and for protecting their home directory. All students involved in dishonesty (those giving as well as those receiving unallowable help) will be penalized.

VII. Academic Support Resources – none for this course.

VIII. Course Outline and Assignment Schedule*

| week # | start date | readings | assignments | events |
|--------|------------|-------------------------------------|-------------|-------------------------------|
| 1 | 9-Jan | Ch. 1 Introduction | | Late registration ends Friday |
| 2 | 16-Jan | Ch. 2 Intelligent Agents | Exercise #1 | Monday Holiday 1/16 |
| 3 | 23-Jan | Ch. 3 Solving Problems by Searching | Exercise #2 | |
| 4 | 30-Jan | Ch. 4 Beyond Classical Search | Exercise #3 | |
| 5 | 6-Feb | Blocks Stacking Example | | |
| 6 | 13-Feb | Ch. 5 Adversarial Search | Exercise #4 | |

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|----|--------|-------------------------------|------------------|-------------------------|
| 7 | 20-Feb | | Midterm assigned | |
| 8 | 27-Feb | | Midterm due | Midterms Week |
| 9 | 5-Mar | | | Midterm Break |
| 10 | 12-Mar | Ch. 6 Constraint Satisfaction | Exercise #5 | |
| 11 | 19-Mar | Ch. 7 Logical Agents | Exercise #6 | |
| 12 | 26-Mar | Ch. 8 First-order Logic | | |
| 13 | 2-Apr | Ch. 9 Inference | Exercise #7 | Holiday 4/6 |
| 14 | 9-Apr | Ch. 10 Classical Planning | Exercise #8 | |
| 15 | 16-Apr | Ch. 13 Uncertainty | Final assigned | |
| 16 | 23-Apr | Review & Conclusions | | Classes end Friday 4/27 |
| 17 | 30-Apr | | Final due | Final Exams Week |

* This schedule is subject to change for the optimum benefit of the class as a whole. Therefore it is important to stay alert and keep up with assignments.

IX. Teaching Strategies

The primary teaching strategies for this course will be textbook readings, lectures, lectures notes, discussions and exercises.

X. Bibliography

Bratko, Ivan. *Prolog Programming for Artificial Intelligence, 3rd Edition*. Addison-Wesley, 2001.

Lugar, George F. *Artificial Intelligence, 4th Edition*. Addison-Wesley, 2002.

Murphy, Robin R. *Introduction to AI Robotics*. MIT, 2000.

Nilsson, Nils J. *Artificial Intelligence: A New Synthesis*. Morgan Kaufmann, 1998.

Poole, David; Mackworth, Alan & Goebel, Randy. *Computational Intelligence*. Oxford University, 1998.