Foundations of Artificial Intelligence
CS 561 (3 Units)

Overview
This course provides an overview of the field of Artificial Intelligence: foundations of symbolic intelligent systems, search, logic, knowledge representation, planning, learning.

Prerequisite
Recommended preparation: good programming and algorithm analysis skills.

Lecture
Tuesday/Thursday 2-3:50pm in GFS 101

Exams
Tuesday 2-4pm on June 10, July 8, and August 5.

Textbook
Russell and Norvig, Artificial Intelligence, A Modern Approach, 3rd Edition
See also http://aima.cs.berkeley.edu/ for additional resources including Code http://aima.cs.berkeley.edu/code.html Demos http://aima.cs.berkeley.edu/demos.html

Professor
Dr. Sheila Tejada
Office: RTH Tutor Cafe
E-mail: stejada@usc.edu
Website: http://bcf.usc.edu/~stejada
Office Hours: Tuesday/Thursday 1-2pm and by appointment

TA
Zahra Nazari

Grading: The following point structure will determine the grade for the course:

- Participation Activities 10%
- Exam 1 30%
- Exam 2 30%
- Exam 3 30%

Final letter grades for the course will follow this scale:

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Participation Activities
Unlike some traditional classroom settings where the instructor talks and students listen, we will attempt to create a classroom environment where the instructor facilitates active student participation in their own
learning process. Simply showing up to class is not enough; come to class ready to participate, listen, think, and ask questions. Small in-class activities will be provided to help facilitate achievement of learning goals. Two in-class activities can be missed due to sickness or absence without penalty.

**Reading Assignments**

Readings from the book contain theoretical concepts, examples and usable code that will be very helpful for all the work in this course.

**Homework Assignments**

Weekly assignments will combine written problems from the textbook and programming exercises. These exercises will be completed using the Python programming language. They are to be completed individually outside of class. A separate document will be provided with the description for each assignment.

**Course Exams**

Students will be expected to know the material from the assigned readings in the book, in-class activities, and the homework assignments. The exams are a student’s chance to demonstrate that they fully understand the course material. Exams are closed book. They will cover the lectures, readings, activities, and homework. For absences due to illness, a doctor's note is required as proof of illness or emergency. There are no make-up exams, but providing the instructor with a doctor’s note will add the weight of the missed exam to the next exam.

**Policies**

**Statement for Students with Disabilities**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.-5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

**Statement on Academic Integrity**

Academic dishonesty includes (but not limited to) the following:

1. Giving or receiving information during an exam.
2. Unauthorized or malicious use of computing facilities.
3. Deception or misrepresentation in a student's dealing with the instructor, teaching assistant, or grader.
4. Inappropriate collaboration on or copying of homework assignments to reduce or share the work.
5. Plagiarism, the submission of material authored by another person but represented as the student's own work. It does not matter whether the author of the original work gave permission.
6. Any violation of academic integrity standards described in the student conduct code.
All students are responsible for reading and following the Student Conduct Code. Note that the USC Student Conduct Code prohibits plagiarism. Some examples of what is not allowed by the conduct code: copying all or part of someone else's work (by hand or by looking at others' files, either secretly or if shown), and submitting it as your own; giving another student in the class a copy of your assignment solution; and consulting with another student during an exam. If you have questions about what is allowed, please discuss it with the instructor.

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. Since dishonesty in any form harms the individual, other students, and the university, policies on academic integrity will be strictly enforced. Violations of the Student Conduct Code will be filed with the Office of Student Conduct.

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. *Scampus* contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: [http://www.usc.edu/dept/publications/SCAMPUS/gov/](http://www.usc.edu/dept/publications/SCAMPUS/gov/). Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: [http://www.usc.edu/student-affairs/SJACS/](http://www.usc.edu/student-affairs/SJACS/).

**Homework Assignment Submission**

Please also note that you may submit your homework assignments to be corrected using the [USC Blackboard System](http://www.usc.edu/dept/publications/SCAMPUS/gov/) since the Blackboard System timestamps your submission. You should also verify what you have submitted is what you intended to submit. Please note that it is your responsibility to ensure that you have submitted valid submissions.
Foundations of Artificial Intelligence  
CSCI 561 (3 Units)

**Week 1** – Introduction to Artificial Intelligence and Intelligent Agents  
*Reading:* Chapter 1-2 (AIMA)  
*Homework Assignment 1*

**Week 2** – Problem Solving and Search, Informed Search  
*Reading:* Chapter 3-4 (AIMA)  
*Homework Assignment 2*

**Week 3** – Game Playing / Constraint Satisfaction Problems/ Review for Exam 1  
*Reading:* Chapter 5-6 (AIMA)  
*Homework Assignment 3*

**Week 4** – Exam 1 on Tuesday, June 10/ Logic  
*Reading:* Chapter 7 (AIMA)  
*Homework Assignment 4*

**Week 5** – Logical Reasoning  
*Reading:* Chapter 8 (AIMA)  
*Homework Assignment 5*

**Week 5** – Inference  
*Reading:* Chapter 9 (AIMA)  
*Homework Assignment 6*

**Week 7** – Knowledge Representation / Planning / Review for Exam 2  
*Reading:* Chapter 10, 12 (AIMA)  
*Homework Assignment 7*

**Week 8** – Exam 2 on Tuesday, July 8/ Uncertainty and Probabilistic Reasoning  
*Reading:* Chapter 13-14 (AIMA)  
*Homework Assignment 8*

**Week 9** – Learning with Examples/Knowledge in Learning  
*Reading:* Chapter 18-19 (AIMA)  
*Homework Assignment 9*

**Week 10** - Learning Probabilistic Models/Reinforcement Learning  
*Reading:* Chapter 20-21 (AIMA)  
*Homework Assignment 10*

**Week 11** – Communicating, Perceiving, Acting, and Future Directions/ Review for Exam 3  
*Reading:* Chapter 22-27 (AIMA)

**Week 12** – EXAM 3 on Tuesday, August 5

*Syllabus is subject to change.*
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- number of the week
- Exam
- Lecture