



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 30080D Tuesday 6:00-8:50 pm in MHP 106
30304D Wednesday 6:00-8:50 pm in ZHS 159
30086D Thursday 6:00-8:50 pm in GFS 101

Exams Friday 4-5:50pm on October 11 and December 6.

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>

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Office Hours:
Monday 2-5pm
Tuesday/ Wednesday /Thursday: 4-5pm
and by appointment

Grading: The following point structure will be used in determining the grade for the course:

Participation Activities	10%
Quizzes	10%
Homework Assignment 1	5%
Homework Assignment 2	5%
Homework Assignment 3	10%
Homework Assignment 4	10%
Exam 1	25%
Exam 2	25%

Final letter grades for the course will follow this scale:

>85%	85- 80%	79- 75%	74- 70%	69- 65%	64- 60%	59- 55%	54- 50%
A	A-	B+	B	B-	C+	C	C-

Participation Activities & Quizzes 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. Students may miss 2 in-class activities due to sickness or absence without penalty. Quizzes will be given on the material from the previous week. There will be 11 quizzes. Students may drop the lowest score.

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 Assignments will combine written problems from the textbook and programming exercises. These are 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, quizzes, the 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, quizzes, 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/>. 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/>.

Homework Assignment Submission

Please also note that you must submit your code using the [USC Blackboard System](#) 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*.

Late Policy

All homework assignments must be turned in on time. Late submissions will receive severe penalties. If you submit within 24 hours after the grace period, you will receive 80% of your grade. If you submit within 48 hours after the grace period, you will receive 50% of your grade. If you are unable to complete an assignment due to illness or family emergency, please see the instructor as soon as possible to get an extension. A doctor's note is *required* as proof of illness or emergency. In general, when you get sick, it's best to see a doctor and get a note just in case you may need it later.

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

Reading: Chapter 3 (AIMA)

Quiz 1

Week 3 – Informed Search and Game Playing

Reading: Chapter 4-5 (AIMA)

Homework Assignment 1 due

Quiz 2

Week 4 – Constraint Satisfaction Problem and Logic

Reading: Chapter 6-7 (AIMA)

Homework Assignment 2

Quiz 3

Week 5 – Logical Reasoning and Inference

Reading: Chapter 8-9 (AIMA)

Quiz 4

Week 6 – Knowledge Representation and Planning

Reading: Chapter 10-12 (AIMA)

Homework Assignment 2 due

Quiz 5

Week 7 – Review for Exam 1

**** EXAM 1 on Friday, October 11, 4-5:50pm ****

Week 8 – Uncertainty and Probabilistic Reasoning

Reading: Chapter 13-14 (AIMA)

Homework Assignment 3

Quiz 6

Week 9 – Learning with Examples

Reading: Chapter 18 (AIMA)

Quiz 7

Week 10 – Knowledge in Learning

Reading: Chapter 19 (AIMA)

Homework Assignment 3 due

Quiz 8

Week 11 – Learning Probabilistic Models/ Reinforcement Learning

Reading: Chapter 20-21 (AIMA)

Homework Assignment 4

Quiz 9

Week 12 – Communicating, Perceiving, and Acting
Reading: Chapter 22-24 (AIMA)
Quiz 10

Week 13 – Robotics, Philosophy and Future
Reading: Chapter 25-27 (AIMA)
Homework Assignment 4
Quiz 11

Week 14 –Thanksgiving Break
No Class

Week 15 – Review for Exam 2
**** EXAM 2 on Friday, December 6, 4-5:50pm ****

Syllabus is subject to change.

2013

July							October							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	
	1	2	3	4	5	6	6			1	2	3	4	5
7	8	9	10	11	12	13	7	6	7	8	9	10	11	12
14	15	16	17	18	19	20	8	13	14	15	16	17	18	19
21	22	23	24	25	26	27	9	20	21	22	23	24	25	26
28	29	30	31				10	27	28	29	30	31		

August							November							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3						1	2	
4	5	6	7	8	9	10	11	3	4	5	6	7	8	9
11	12	13	14	15	16	17	12	10	11	12	13	14	15	16
18	19	20	21	22	23	24	13	17	18	19	20	21	22	23
1	25	26	27	28	29	30	14	24	25	26	27	28	29	30

September							December							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	
2	1	2	3	4	5	6	15	1	2	3	4	5	6	7
3	8	9	10	11	12	13	8	9	10	11	12	13	14	15
4	15	16	17	18	19	20	16	16	17	18	19	20	21	22
5	22	23	24	25	26	27	23	23	24	25	26	27	28	29
6	29	30					30	30	31					

number of the week
 # Exam
 # Homework assigned
Lecture
 # No Class
Homework due