

# CS 3793/5233 Syllabus – Fall 2016

## Introduction to Artificial Intelligence

This course studies the area of artificial intelligence from the standpoint of general problem solving techniques. Major topics covered include methods of search, logic, probabilistic reasoning and machine learning. 3 hours credit. Prerequisites: CS 3343/3341 (Undergraduate Analysis of Algorithms). The objectives of this course are to give you an understanding of the fundamental concepts of AI and how they are realized by computer programs.

### Instructor

Name: Tom Bylander  
Office: NPB 3.322  
Phone: 458-5693  
Email: [bylander@cs.utsa.edu](mailto:bylander@cs.utsa.edu)  
Web Page: <http://www.cs.utsa.edu/~bylander/cs3793>  
Office Hours: TR 2:30-4:00pm or by appointment.

### Book

Required: David Poole and Alan Mackworth, *Artificial Intelligence: Foundations of Computational Agents*, Cambridge University Press, 2010.  
(<http://artint.info/index.html>)

### Grading

Homework 10%, Programming 40%, 2 Midterms 30%, Final Exam 20%.

### Homework and Programs

There will be five homework assignments. Although homeworks only count for 10% of the grade, the problems on these assignments will be close to the kinds of questions I will ask on the exams. You will want to make your mistakes on the homeworks rather than the exams.

Short homeworks will be assigned regularly and will normally be due within one week. They are intended to be easy to solve after you have attended the lecture and read the assignment. You will fulfill the 10% homework portion of your grade if you average 50% over all the homework problems. Late homeworks will be accepted only for reasonable excuses.

There will be five programming assignments to implement a few of the methods that we will be studying. Initial code will be provided in Java; check with me about other programming languages. Late programming assignments will be accepted with 50% off.

Graduate students will have an additional assignment, yet to be determined.

All assignments will be handed in electronically by using Blackboard (<http://utsa.blackboard.com>).

## Attendance and Participation

Regular class attendance per se is not required, but you should note that the homeworks, labs, and exams will be partly based on the lectures. You should also note that homework will be regularly assigned and discussed. Make-up exams are permitted as long as it's a reasonable excuse, you inform me in a timely fashion, and you document the excuse.

## Tentative Schedule

<u>Week</u>	<u>Topic</u>	<u>Assignment</u>
Week 1	What is AI? What are agents?	§1, §2, Lab 1 Assigned
Week 2	Search	§3
Week 3	Constraint Satisfaction Problems	§4, Lab 1 Due
Week 4	Propositions and Inference	§7, Lab 2 Assigned
Week 5	Bayesian Networks	§6
Week 6	Variable Elimination	§6, Lab 2 Due
Week 7	Exam 1	Lab 3 Assigned
Week 8	Machine Learning	§7
Week 9	Machine Learning	§7, Lab 3 Due
Week 10	Clustering	§11, Lab 4 Assigned
Week 11	Reinforcement Learning	§11
Week 12	Exam 2	§11, Lab 4 Due
Week 13	Planning	§8, Lab 5 Assigned
Week 14	Markov Decision Processes	§9
Week 15	Two-Person Games	§10, Lab 5 Due
Dec. 13	<b>Final Exam: Tuesday, 6:00pm to 8:30pm</b>	

## Scholastic Dishonesty

The integrity of a university degree depends on the integrity of the work done for that degree by each student. The University expects a student to maintain a high standard of individual honor in his/her scholastic work.

In this course, collaboration is permitted on homework and the programs with the following conditions: direct copying is **not** allowed, and all collaborations are explicitly identified. In particular, copying other students' homework or code with minor modifications will be regarded as a serious case of cheating. You must write your own answers and your own code.

Common syllabus information and links can be found at <http://provost.utsa.edu/syllabus.asp>. In particular, further information on UTSA's policies regarding academic dishonesty can be found in UTSA's Student Code of Conduct, Section 203 (<http://catalog.utsa.edu/informationbulletin/appendices/studentcodeofconduct/index.html#sec.203.scholasticdishonesty>).