

San Francisco State University
Department of Computer Science

CSC 665: Artificial Intelligence

Overview

Course Description: This course provides an introduction to the field of Artificial Intelligence. It will make a broad coverage of modern AI. The course is designed for computer science students but is also suitable for engineering students or those with some familiarity with algorithms, complexity, and probability.

Course Topics: The major topics covered will include search, game playing, knowledge representation, inference, planning, reasoning under uncertainty, machine learning, and some AI applications. The techniques you learn in this course apply to a wide variety of artificial intelligence problems and will serve as the foundation for further study in any application area you choose to pursue.

Prerequisites: Prior computer programming experience is required. Additional background in data structures and algorithms, linear algebra, and probability will all be helpful. You should be prepared to review basic probability on your own if it is not fresh in your head.

Programming Language: Course programming assignments will be in Python.

Academic Honesty: Plagiarism is a serious offence and will be dealt with harshly. I consider plagiarism to be the unattributed use of an external source (e.g., another student, a web site, a book) in work for which a student takes credit, or the inappropriate use of an external source whether or not attribution is made. The seriousness of the offence depends on the extent to which the student relied upon the external source. All written work must be your own. Programming assignments must be your own except for 2-person teams when teams are authorized. All work ideas, quotes, and code fragments that originate from elsewhere must be cited according to standard academic practice. Students caught cheating will automatically fail the course. It is your responsibility to familiarize yourself with the following rules:

- SFSU Code of Student Conduct: <http://conduct.sfsu.edu/standards>
- Academic Dishonesty: <http://conduct.sfsu.edu/academic-dishonesty>
- Plagiarism: <http://conduct.sfsu.edu/plagiarism>
- Computer Science Department Policy: <http://cs.sfsu.edu/plagiarism.html>

Grades

Overall Grading Scheme

Warning: The instructor reserves the right to adjust this grading scheme during the term, if necessary.

Assignments	35 %
Midterm	25 %
Final	35 %
Participation in Discussions; Attendance	5 %

Grades are on the following fixed scale:

A	[90 - 100]%
A-	[85 - 90]%
B+	[80 - 85]%
B	[75 - 80]%
B-	[70 - 75]%
C+	[66 - 70]%
C	[63 - 66]%
C-	[60 - 63]%
D+	[56 - 60]%
D	[53 - 56]%
D-	[50 - 53]%
F	[0 - 50]%

Curving Grades: Final grades may be curved to give the overall distribution of grades a desired mean and standard deviation.

Late Assignments: Students will be given five late days for use on the assignments; at most two can be used for any one assignment. The purpose of late days is to allow students the flexibility to manage unexpected obstacles to coursework that arise during the course of the term, such as travel, moderate illness, conflicts with other courses, extracurricular obligations, job interviews, etc. Thus, additional late days will NOT be granted except under truly exceptional circumstances.

How late does something have to be to use up a late day? A day is defined as a 24-hour block of time beginning at 2:00 pm on the day an assignment is due. Examples:

- Handing in an assignment at 4 pm on the day it is due consumes one late day.
- Handing in an assignment at 10:15 am the morning after it is due consumes one late day.
- Handing in an assignment at 2:30 pm the day after it is due consumes two late days.

Texts

We will be using the following textbooks:

- Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach*, Prentice Hall, 2009 (Third edition).
- David L. Poole and Alan K. Mackworth, *Artificial Intelligence: Foundations of Computational Agents*, Cambridge University Press, 2017. The entire book is available for free in e-format at the above link.

Email and iLearn Policies

- Please use email for **personal matters** only. For email, always include the course number. A good practice is to start your subject as "CSC 665: ...".
- For general questions about the course material or assignments or exams, iLearn is the default place to ask questions. Many of your fellow students may have the exact same question in mind and will appreciate it if they see the question asked (and already answered) on their next visit to the board. I strongly encourage students to participate in discussions, ask, and answer questions through this site.

Feedback

Please give feedback (positive or negative) as often as and as early as you can. To send a message to the instructor, [use this form](#). You do not need to enter your name or email address unless you wish to receive a direct response. Note that your question or a paraphrase of it may be posted (and answered) on the discussion board or in lecture.

Topics Covered

Introduction to AI
Intelligent Agents
Uninformed Search
Informed Search
Local Search
CSP I
CSP II
Games I
Games II
Markov Decision Processes I
Markov Decision Processes II

Reinforcement Learning I
Reinforcement Learning II
Probability
Bayes Nets: Representation
Bayes Nets: Independence
Bayes Nets: Inference
Bayes Nets: Inference II
HMM
Dynamic Bayes Nets and Particle Filtering
ML: Intro
ML: Classification
ML: Deep Learning
ML: Clustering

Disability Access

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu)

Student Disclosures of Sexual Violence

SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Title IX Coordinator by completing the report form available at <http://titleix.sfsu.edu>, emailing vpsaem@sfsu.edu or calling 338-2032. To disclose any such violence confidentially, contact:

- The SAFE Place - (415) 338-2208; http://www.sfsu.edu/~safe_plc/
- Counseling and Psychological Services Center - (415) 338-2208;
- For more information on your rights and available resources: <http://titleix.sfsu.edu>