

CPSC 470/570 - Artificial Intelligence

Course Information:

An introduction to artificial intelligence research, focusing on reasoning and perception. Topics include knowledge representation, predicate calculus, temporal reasoning, vision, robotics, planning, and learning.

Location: Davies Auditorium

Time: MWF 10:30-11:20

Prerequisites: CPSC 201 and 202.

Required Textbook: *Artificial Intelligence: A Modern Approach* by Stuart Russell and Peter Norvig. We are using the third edition of the text, which has a blue cover.

Assignments and Grading:

Grades will depend on a midterm exam (~20%), a final examination (~30%), and problem sets (~50%). The content of problem sets will vary from intensive programming assignments to theoretical puzzles.

Late assignments will **not** be permitted without a Dean's excuse.

Collaboration Policy:

You are encouraged to discuss assignments with the instructor, with the TA, and with other students. However, each student is required to implement and write any assignment on their own. This includes both pencil-and-paper and coding exercises. You are not permitted to copy, in whole or in part, any written assignment or program as part of this course. You will not allow your own work to be copied. Homework assignments are your individual responsibility, and plagiarism will not be tolerated.

Attendance:

Lectures will contain material that is not covered by the text (and may not appear on the lecture slides). You are responsible for all material presented in lectures, material contained in the assigned reading, and material covered by the homework assignments.

Contact Information:

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Date	Lecture Topic	Reading
01/14/19	Course Overview	CH 1
01/16/19	Intelligent Agents	CH 2
01/18/19	Python Intro	
01/21/19	No class - MLK	
01/23/19	Basic Search Algorithms	CH 3
01/25/19	Informed Search Algorithms	CH 4
01/28/19	Adversarial Search and Game Playing	CH 5
01/30/19	TBA	
02/01/19	Guest– Dragomir Radev – Natural language processing	
02/04/19	Constraint satisfaction problems	CH 6
02/06/19	Propositional Logic	CH 7
02/08/19	First Order Logic	CH 8.1-8.3
02/11/19	Building a Knowledge Base	CH 8.4-8.5, 12
02/13/19	Inference	CH 9
02/15/19	Planning	CH 10
02/18/19	Motion Planning	CH 25.4-25.5
02/20/19	Planning in the Real World	CH 11
02/22/19	Reasoning Under Uncertainty	CH 13, 14
02/25/19	Learning from Observations	CH 18
02/27/19	Guest - Marynel Vasquez – Social robot navigation	
03/01/19	Supervised Learning	CH 19
03/04/19	Midterm Exam	
03/06/19	Genetic Algorithms	n/a
03/08/19	<i>Flex day</i>	
	Spring break	
03/25/19	Neural Networks	CH 20
03/27/19	Deep Learning	n/a
03/29/19	Reinforcement Learning I (utility functions)	CH 21.1-21.3
04/01/19	Reinforcement Learning II (action-value learning)	CH 21.4-21.7
04/03/19	Natural Language Processing	CH 22
04/05/19	Communication	CH 23
04/08/19	Introduction to Machine Perception	CH 24.1-24.3
04/10/19	Higher-level Perception	CH 24.4-24.7
04/12/19	Vision and Robotics	CH 25.3
04/15/19	Robotics: Kinematics, Sensors and Actuators	n/a
04/17/19	Robotics: Control Architectures	CH 25.1-25.2
04/19/19	Humanoid Robots	CH 25.7
04/22/19	Emergence	n/a
04/24/19	Current Topics in AI	CH 26
04/26/19	The Future of AI	CH 27