Course Syllabus

COMP 3703

Introduction to Artificial Intelligence
Fall 2019
University of Denver

Course Calendar (subject to change)

Week	Topics	Day
1	Introduction to AI	September 9
	Introduction to Python	September 11
2	Uninformed Search	September 16
	A* Search and Heuristics	September 18
3	Constraint Satisfaction Problems I	September 23
	Constraint Satisfaction Problems II	September 25
4	Game Trees: Minimax	September 30

	Game Trees: Expectimax	October 2
5	Midterm Review	October 7
	Midterm	October 9
6	Markov Decision Processes I	October 14
	Markov Decision Processes II	October 16
7	Reinforcement Learning I	October 21
	Reinforcement Learning II	October 23
8	ML: Naive Bayes	October 28
	ML: Perceptrons and Regression	October 30
9	ML: Optimization and Neural Networks	November 4
	ML: Neural Networks and Decision Trees	November 6
10	TBD	November 11
	Final Review	November 13
11	**Final**	**November 18**

Back

Course Description and Learning Outcomes

This course will cover topics including:

- the current state of artificial intelligence
- searching in the context of a single agent
- constraint satisfaction problems
- adversarial search

- Markov decision processes
- reinforcement learning
- neural networks
- and other various topics in machine learning

By enrolling in this section, you agree that you:

- Will prepare for and attend every class meeting.
- Will ask questions and volunteer answers.
- Will honorably help others in the class to succeed and let others honorably help you to succeed.

Back

Lecture Room And Time

Clarence M. Knudson Hall, Monday and Wednesday, 4:00pm - 5:50pm

Back

Professor:

Terron Ishihara (**terron.ishihara@du.edu (mailto:terron.ishihara@du.edu)**)

- Office Hours: Tuesday / Thursday 1:00pm - 3:00pm
- Location: ECS 358

Teaching Assistant:

Jason Kinghorn (**jason.kinghorn@du.edu (mailto:jason.kinghorn@du.edu)**)

- Office Hours: Tuesday / Thursday 9:00am - 11:00am
- Location: ECS 111

Back

Textbook (Not Required)

Artificial Intelligence: A Modern Approach (3rd Edition) by Stuart Russell and Peter Norvig

Having a copy of the textbook is not required for this course. If, however, you would like to have a textbook on AI and particularly one that covers topics that we'll cover in this course (and much, much more), this is an excellent resource.

Back

Course Work And Late Policy

Quizzes (15%)

- Quizzes will be held at the end of class **each Wednesday** unless otherwise specified. Each quiz will cover material from the previous week's lectures.
- Make-up quizzes can be given to accommodate religious holidays and outstanding circumstances. Contact the instructor ahead of time if you know you will miss a quiz so arrangements can be made.
- Your lowest quiz score will be dropped.

Homework (10%)

- Homework assignments will not necessarily deal with lecture material, but rather will mostly focus on the ethical considerations in the field of AI. These assignments are not about finding a right answer. They are meant to make you think and consider multiple perspectives on morally ambiguous situations.
- These assignments will be due before class **each Monday**. The beginning of lectures on Mondays will be reserved to discuss the contents of the assignments, so these cannot be turned in late.

Projects (25%)

- Projects are implemented in Python. These are designed to apply the material covered in lecture to an actual programming task, namely using the Pac-Man framework.
- Projects will be due **every two weeks on Thursday** unless otherwise specified.
- You may work alone or with one other person on the projects. Partners must be decided at the beginning of the course.

Midterm Exam (25%)

- The midterm will be held on **Wednesday, October 9th**. This is a pencil-and-paper exam that covers all the material from the first half of the quarter.

Final Exam (25%)

- The final will be held on **Monday, November 18th**. This is a pencil-and-paper exam that covers all the material from the entire quarter, but focusing largely on the second half.

Late Policy:

- All projects will have a 24-hour timeframe after the posted deadline with a penalty of a maximum of 20% off. This means that 80% is the maximum grade you can receive for a project submitted on within 1 day after the deadline for that project. If you score lower than 80% for the late project, then no further penalty is added.
- All deadlines are according to Mountain Standard Time.
- Plan accordingly and give yourself PLENTY of time to start, ask questions, and complete your assignment.

Attendance

Attendance is not explicitly required, but you must be in class in order to take the exam (unless arrangements have been made otherwise under consultation with the instructor).

Back

Grade Evaluation:

Each component of this course will be weighted to determine your final course grade. Your grade for this course will be based on the above components and their associated weights.

Grades will be assigned based on the following scale:

A   93 - 100 %

A- 90 - 93 %

B+ 87 - 90 %

B   83 - 87 %

B- 80 - 83 %

C+ 77 - 80 %

C   73 - 77 %

C- 70 - 73 %

D+ 67 - 70 %

D   63 - 67 %

D- 60 - 63 %

F   Below 60 %

Back

Students with Disabilities/Medical Issues

If you qualify for academic accommodations because of a disability or medical issue please submit a Faculty Letter to me from **Disability Services Program** (DSP) in a timely manner so that your needs may be addressed. DSP is located on the 4th floor of Ruffatto Hall. Information is also available on line at **http://www.du.edu/disability/dsp (http://www.du.edu/disability/dsp)** ; see the _Handbook for Students with Disabilities_.

Back

Title IX

Gender violence can happen to anyone regardless of race, class, age, appearance, gender identity, or sexual orientation. The University of Denver is committed to providing an environment free of discrimination on the basis of sex (gender), including sexual misconduct, sexual assault, relationship violence, and stalking. **The Center for Advocacy, Prevention and Empowerment (CAPE) (http://www.du.edu/health-and-counseling-center/cape/index.html)** provides programs and resources to help promote healthy relationships, teach non-violence and equality, and foster a respectful and safe environment for all members of the University of Denver community. All services are confidential and free of charge.

For assistance during business hours, call 303-871-3853 and ask to speak to the Director of CAPE. After hours, please call the Emergency & Crisis Dispatch Line at 303-871-3000 and ask to speak to the CAPE advocate on call.

Back

Religious Accommodations Policy

University policy grants students excused absences from class or other organized activities or observance of religious holy days, unless the accommodation would create an undue hardship. You must notify me by the end of the first week of classes if you have any conflicts that may require an absence. It is your responsibility to make arrangements with me in advance to make up any missed work or in-class material.

Back

Honor Code/Academic Integrity

All work submitted in this course must be your own and produced exclusively for this course. The use of sources (ideas, quotations, paraphrases) must be properly acknowledged and documented. For the consequences of violating the Academic Misconduct policy, refer to the University of Denver website on the Honor Code (**www.du.edu/honorcode (http://www.du.edu/honorcode)**). See also **http://www.du.edu/studentconduct (http://www.du.edu/studentconduct)** for general information about conduct expectations from the Office of Student Conduct.

Back

Student Athletes

If you are a student athlete, you should inform the instructor of any class days to be missed due to DU sponsored varsity athletic events in which you are participating. Please provide the instructor with an absence policy form by the end of the first week of class. You will need to make up any missed lectures, assignments, and/or exams.

Back

Use of Technology in the Classroom

Access to the internet can be a valuable aid to the classroom learning environment. You may be encouraged to use a laptop, smart phone, or other device to explore concepts related to course discussions and in-class activities. Keep in mind, however, that these technologies can be distracting – not only for you, but to others in the class. Please avoid the temptation of Facebook, texting, or other off-topic diversions.

Back

Online and Web-supported Classes

It is the student's responsibility to procure reliable, readily-accessible Internet service in order to fulfill course expectations. The instructor is under no obligation to accept late assignments or waive required tasks (e.g., discussion participation) due to lack of online access or malfunctioning computer hardware. Please consider identifying an alternative Internet source in case of technical problems. **Look here for a list of computer labs on the DU campus** **(http://www.du.edu/uts/labs/)** . Computer support is available from the **University Technology Support (UTS) Help Center** **(http://www.du.edu/uts/helpdesk/)** .

Back

Course Summary:

Date	Details	
Mon Sep 16, 2019	📝 **Homework 1: Humans Need Not Apply** **(https://canvas.du.edu/courses/99364/assignments/624801)**	due by 4pm
Thu Sep 19, 2019	📝 **Project 0: Sorting** **(https://canvas.du.edu/courses/99364/assignments/624764)**	due by 11:59pm
Mon Sep 23, 2019	📝 **Homework 2: Do Robots Deserve Rights?** **(https://canvas.du.edu/courses/99364/assignments/625632)**	due by 4pm
Mon Sep 30, 2019	📝 **Homework 3: Her** **(https://canvas.du.edu/courses/99364/assignments/625864)**	due by 4pm
Thu Oct 3, 2019	📝 **Project 1: Search** **(https://canvas.du.edu/courses/99364/assignments/623095)**	due by 11:59pm
	📝 **Quiz 1** **(https://canvas.du.edu/courses/99364/assignments/637247)**	
	📝 **Quiz 2** **(https://canvas.du.edu/courses/99364/assignments/638989)**	