



Course Syllabus

Course Information

CS 4375-Introduction to Machine Learning-Spring 2021

Professor's Contact Information

Professor: Dr. Gity Karami

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Office Location: ECSS 3.202

Email: gity.karami@utdallas.edu

Office hours: Fridays: 4:00 pm – 6:00 pm by appointment

Signup link: <https://calendly.com/gxk180009/virtual-office-hours>

Please sign up in advance (at least one day before your scheduled meeting)

Course Modality and Expectations

- **Instructional Mode:** Online
- **Course Platform:** All instruction will be through the eLearning platform, where Youtube links to the recorded lectures will be posted. We will also use Microsoft Team as synchronous Q&A platform and piazza as asynchronous Q&A platform.
- **Expectations:** Students should watch each recorded class shortly after the class's recording has been posted. Active participation on piazza is also expected.
- **Asynchronous Learning Guidelines:** You will have asynchronous access to the all course materials. Asynchronous access does not mean that you can complete the course and course requirements at your own pace or discretion. Asynchronous access means flexibility is given to you completing the course at a distance. Please note that you will need to meet the requirements and standards set forth by the instructor.

Class Recordings:

The class's lectures will be recorded and YouTube links posted in eLearning. Additionally, the instructor may record other meetings of this course, and such recordings will be posted in eLearning too. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded material. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Course “Tentative Times”:

Typically, the lecture recordings will be available in eLearning: Mondays and Wednesdays, by 7:00 pm. (Although you can watch the recordings at any time and not necessarily at the tentative times, it is suggested that you watch each recorded class shortly after the class’s recording has been posted, but definitely by Thursday each week.)

Piazza:

We'll be using piazza as asynchronous Q&A platform. The quicker you begin asking questions on Piazza (rather than via emails), the quicker you'll benefit from the collective knowledge of your classmates and instructor. I encourage you to ask questions when you're struggling to understand a concept. The link to enroll in Piazza is available in e-learning.

Microsoft Team:

We'll be using Microsoft Team as synchronous Q&A platform. Typically, we will have optional live Q&A sessions every two weeks on Fridays. Attending to the live Q&A sessions is highly recommended.

Class Participation:

Regular viewing of class’s recordings and piazza’s posts is expected. Students who fail to follow the class materials regularly are inviting scholastic difficulty. The course’s material gets much more complex as the course progresses, and it is typically very difficult to catch up with missed classes.

Class Materials:

The instructor may provide class materials that will be made available to all students registered for this class. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in the class or uploaded to other online environments, except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Course Prerequisites:

(CS 3341 or SE 3341) and (CE 3345 or CS 3345 or SE 3345 or TE 3345)

Course Description:

CS 4375 - Introduction to Machine Learning (3 semester credit hours): Algorithms for creating computer programs that can improve their performance through learning. Topics include: cross-validation, decision trees, neural nets, statistical tests, Bayesian learning, computational learning theory, instance-based learning, reinforcement learning, bagging, boosting, support vector machines, Hidden Markov Models, clustering, and semi-supervised and unsupervised learning techniques

Text Book:

No required text, but any of the following texts would serve as a good reference:

- Machine Learning, Tom M. Mitchell, McGraw Hill, 1997.
- Introduction to Data Mining, Pang-Ning Tan, Michael Steinbach, University of Minnesota, University of Minnesota, Addison Wesley, 2006.
- Artificial Intelligence: A Modern Approach (second/third edition), Stuart Russell and Peter Norvig, Prentice Hall, Inc., 2003/2010.

*supplementary materials will be posted in the e-learning

Learning Objectives:

Ability to understand and apply the following concepts in machine learning:

1. Decision trees
2. Neural networks
3. Bayesian learning
4. Instance-based Learning
5. Hidden Markov models
6. Clustering
7. Reinforcement learning

Course Works and Grading Policies:

Exams: 48% (Midterm Exam: 18% , Comprehensive Final Exam: 30%)

Assignments: 48% (Six Assignments, each 8%)

Quizzes: 4%

*Instructor reserves the right to alter these weights or make changes as she sees fit.

Grades will be assigned according to the following scale

A+	97 and above
A	93 - 96 (93 or more and less than 97)
A-	90 - 92 (90 or more and less than 93)
B+	87 - 89 (87 or more and less than 90)
B	83 - 86 (83 or more and less than 87)
B-	80 - 82 (80 or more and less than 83)
C+	77 - 79 (77 or more and less than 80)
C	73 - 76 (73 or more and less than 77)
C-	70 - 72 (70 or more and less than 73)
D	60 - 69 (60 or more and less than 70)
F	Below 60

*We will have reading assignment every week.

Exams: There will be two exams in this course. You are responsible for being available during the exam times. If you cannot make an exam time due to a valid excuse, you must let me know BEFORE the exam date and time. Medical emergencies will require a note from your Doctor. Missed exams will result in a grade of 0 for that exam. You should also be able to fully demonstrate any of your submitted exams. Otherwise, you will be given zero credit for the exam.

This course may use Honorlock – an online exam proctoring tool. To successfully take an exam, you must have a web camera with microphone, a laptop or desk-

top computer (no tablets/phones), Chrome browser, a reliable internet connection and your photo ID. You will be prompted to install the Honorlock Chrome Extension (which you can remove after you finish the test). You will then access the exam within your eLearning course and go through the authentication process. The web camera will monitor you throughout test. Please see the Testing Guidelines and Support Information for additional information.

Assignments: Doing assignments is vital for meeting the learning objectives and succeeding in this course. There will be six assignments in this course. You must work on the assignments individually. You should also be able to fully demonstrate any of your submitted assignments. Otherwise, you will be given zero credit for the assignment.

Please note that you must use R for programming assignments.

Quizzes: You are supposed to work on each quiz in teams of two students or individually. You are allowed to use the text book and lecture slides during the quizzes. Quizzes will be posted on Thursdays at 11:59 pm and you have 24 hours to submit them. Late submissions will not be accepted for any quizzes.

Late Submission Policy: I expect you to submit all assignments by the due dates. If you submit your assignments late, 15% penalty will be deducted per day. Late assignments will be accepted up to 2 days after the due date and thereafter 0. If you believe that you have a valid excuse for your work being late, then you must make arrangements with the instructor BEFORE the due date. Late submissions are not permitted once the graded assignment has been returned to students. Medical excuses will require a note from your Doctor.

One Time Extension Pass: I understand you may not be able to always submit your work on time due to a circumstance beyond your control. I will grant all students one extension pass. The extension pass extends the due date of one assignment 24 hours and avoids 15% late penalty. Please note that the extension pass can be used ONLY one time during the semester. If you use the extension pass for an assignment more than 24 hours after its due date, you will lose the extension pass and late policy will be applied.

Grading Disputes: All grade disputes must be reported to the instructor using grading dispute form within 5 days of the grade being posted in eLearning. Uncontested grades will become final after 5 days and cannot be disputed later.

Academic Dishonesty: You should do your own work on exams and assignments. Copying another student's work is not acceptable. Any indication of cheating and/or plagiarism on an exam/assignment will be an automatic 0 (zero) for the exam/assignment for all students involved. Solutions copied from the internet, instructor's manual, etc. will be also given zero credit. Please note that suspected incidents will be reported to the Office of Community Standards and Conduct.

Communications: I will be communicating with you via eLearning, piazza, and e-mail. If you need to send me an e-mail make sure it is using your UTD e-mail address. Please choose appropriate subjects for your emails. Always include

your course and section number in the subject of your emails (for example, CS 4375-Midterm exam). I won't answer your emails, if you don't put the course number and section number in the subject of your emails. Make sure you are checking eLearning announcements and checking your UTD e-mail frequently. I can't respond to you via gmail or any other non-UTD e-mail system. I need to verify that you are my student and I can only do that with the UTD e-mail system.

Comet Creed: "As a Comet, I pledge honesty, integrity, and service in all that I do."

Additional Policies: Please visit <http://go.utdallas.edu/syllabus-policies> for all other University policies

Descriptions and timelines are subject to change at the discretion of the Professor.