



# Course Syllabus

## Course Information

CS 4375.002-Introduction to Machine Learning-Spring 2023

Lecture Info: Tu & Th: 10:00 am - 11:15 am ; Class Room location: ECSS 2.305

## Professor's Contact Information

**Professor:** Dr. Gity Karami

**Office Phone:** 972-883-4204

**Office Location:** ECSS 3.202

**Email:** gity.karami@utdallas.edu

**Office hours:** Wed: 11:00 am – 12:00 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:** Traditional Classroom/Laboratory
- **Course Platform:** All instruction will be through the eLearning platform, where all the course materials including links to the recorded/online resources will be posted. We will also use Microsoft Team as synchronous Q&A platform and piazza as asynchronous Q&A platform.
- **Expectations:** Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. Active participation on piazza is also expected.

## Class Recordings:

The class's lectures may be recorded and the 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 **Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments** except to implement an approved Office of Student AccessAbility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.

## 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. Virtual office hours will be held using Microsoft Team on Wed: 11:00 am – 12:00 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). Live lectures may also be available on Microsoft Team during the class time.

### Class Participation:

Regular and punctual class attendance 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. Active participation on piazza is also expected.

### 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: 55% (Quizzes: 10%, Midterm Exam: 15% , Final Exam: 30%)

Assignments: 45% (Five Assignments, each 9%)

\*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. Please note the final exam is a comprehensive exam.

**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.

**Quizzes:** You are supposed to work on each quiz individually. You are allowed to use the text book and lecture slides during the quizzes. 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 4375.002-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.*