Course Syllabus

Course Information

Course: CS 4375.002 Introduction to Machine Learning-Spring 2020
Days &Time: Monday & Wednesday: 11:30 am-12:45 pm ; Location: HH 2.502

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: Monday & Wednesday: 5:30 pm – 7:00 pm
available by appointment for other times

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

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

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.

* supplemental materials will be provided in the e-learning

Course Works and Grading:

Exams: 44% (Midterm exam: 18% , Comprehensive final exam: 26%)
Assignments: 48% (Six assignments, each 8%)
In-class assignments and attendance 8% (each 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.*
**Important dates will be posted in the e-learning.*

Course Policies

Classroom Citizenship: Class participation in terms of asking questions and answering the instructor's questions is highly encouraged. Please do not hesitate to ask questions no matter how simple you might think the answer could be. This type of interaction helps improve the effectiveness of the class and breaks the monotony.

Piazza: We will use Piazza for class discussion and assignment instructions. Please post your questions on Piazza so that everyone has the same information.

Attendance Policy: The CS Department has adopted an attendance policy where if you miss 3 consecutive lectures, you final grade will be automatically dropped by one letter. Missing four consecutive lectures will result in an automatic F in the course.

Assignments: Doing assignments is vital for learning machine algorithms and succeeding in this course. There will be six assignments in this course. You must work on the assignments individually. These assignments will typically be due about 1 week from the date given. 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 should use R for programming assignments.

In-class Assignments: There will be several in-class assignments in this course. You will work on the in-class assignments in teams of two students or individually. You are allowed to use the text book and lecture slides for the in-class assignments. Please note the in-class assignments will not be announced and may not be made up.

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.

Missed Exams: 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.

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 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 4375.001-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.