



Course Syllabus: Spring 2023

Class Information

- CS 4375 Introduction to Machine Learning
 - Tuesday/Thursday 4:00 – 5:15 pm
 - ECSS 2.305
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Professor Contact Information

- Dr. Karen Mazidi
- Email: Karen.Mazidi@utdallas.edu
- Office: ECSS 3.203
- Office phone: 972-883-3868 (goes directly to Teams)
- Office hours: Monday, Wednesday 5:30 – 6:00 pm or by appointment

TA Information

TBD

Class Resources

- **eLearning:** We will use eLearning for the grade book, links to quizzes, and links to upload assignments.
- **YouTube:** Content lectures are on YouTube in the Machine Learning playlist on my channel: <https://www.youtube.com/user/JaniceMazidi>
 - This content duplicates what I will cover in class, so you are not required to watch the videos. However, the videos can be helpful if you miss a class or want a short refresher on a topic.
- **GitHub:** Code samples and other course materials are available on the GitHub for this class:
<https://github.com/kjmazidi/Machine Learning 2nd edition>

Note: This is an upper-level computer science course with many programming assignments. Non-CS majors are strongly cautioned against taking the course if you do not have a strong programming background.

Course Pre-requisites

CS/SE 3341 (Probability and Statistics in CS) and CE/CS/SE/TE 3345 (Data Structures and Algorithms)

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.

Student Learning Objectives/Outcomes

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
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Required Reading and Software:

Notes in pdf form will be provided.

We will be using R and Python for this course. Installation instructions will be provided in class. Two assignments use C++.

Grading

Course grade is composed of:

- 70% - Class portfolio assignments, about one per week
 - 20% - quizzes; at least one a week
 - 10% - attendance/participation
 - there are no exams
 - Letter grades will be assigned according to the UTD +/- conventions. The eLearning system does not round up.
 - 0,1,2,3 minus
 - 4,5,6 neither plus nor minus
 - 7,8,9 plus
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Course & Instructor Policies

- Assignments must be turned in on the due date, by 11:59 pm.
- Late assignments are deducted by 10% on the first and second days late. After two days, the assignment will not be accepted.
- Quizzes are not accepted late.
- Do not turn in code or other work that is not your own. Discussion and collaboration are good things, turning in someone else's work as your own is not.
- **If you do not agree with a grade you have been given, you must make your case within a week of receiving the grade or the grade stands as is.**

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students. Please go to [Academic Support Resources](#) webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.