

COMP 4900B, Winter 2020

Introduction to Machine Learning

Lectures

Mondays, Wednesdays 1:05-02:25 pm

Start date: Jan 6

Tory Building, Room 238

Instructor

Majid Komeili

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Course Description

Machine learning (ML) is the scientific study of algorithms and statistical models that computers use in order to perform a specific task effectively without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence. This course provides a broad introduction to some of the most commonly used ML algorithms.

Topics

This is a tentative list of topics the course will cover.

- Linear regression
- Linear classification
- Performance evaluation
- Regularization
- Decision trees
- Dimension Reduction
- KNN
- Ensemble methods
- Support vector machines
- Neural Networks (CNN, RNN)
- Unsupervised learning and clustering
- Generative models
- Reinforcement learning

Prerequisite

COMP 2404, COMP 2804, and one of MATH1104 or MATH 1107. You are expected to be familiar with probability, statistics, linear algebra and calculus and have basic knowledge of a programming language.

Evaluation

- Assignments (50%)
 - Quizzes (10%)
 - Class participation – polling (5%)
 - Midterm exam (35%)
- A minimum grade of 40% in the midterm is required to pass the course.

Information on Academic Accommodations

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline