

# COMP 5116: Machine Learning

**TITLE:** Machine Learning

**LECTURES:** Tuesday 2:35pm-5:25pm, Location: please check it on Carleton Central or Brightspace

**INSTRUCTOR:** Yuhong Guo, [YuhongGuo\(at\)cunet.carleton.ca](mailto:YuhongGuo(at)cunet.carleton.ca)

**OFFICE HOURS:** Wednesday 1pm-2pm, via zoom; links are on Brightspace

**COURSE SCHEDULE PAGE:** Page link is available on Brightspace

## PREREQUISITES

Familiarity with probability and statistics; familiarity with linear algebra and calculus; programming skills at a level sufficient to write a reasonably non-trivial computer program.

## TEXTBOOKS

- [Machine Learning: A Probabilistic Perspective](#), by Kevin Murphy. MIT Press, 2012.
- [The Elements of Statistical Learning](#), by Trevor Hastie, Robert Tibshirani, Jerome Friedman. Second edition, Springer-Verlag New York, 2009.
- [Pattern Recognition and Machine Learning](#), by Christopher M. Bishop. Springer-Verlag New York, 2006

## DESCRIPTION

Machine learning is the science that gives computers the ability to learn without being explicitly programmed. Machine learning is pervasive today in the world. This course provides a broad introduction to the fundamental concepts, techniques and algorithms in machine learning, including supervised learning methods, unsupervised learning methods, and semi-supervised learning methods.

## GRADING

- Assignments (2): 28%
- Participation: 4%
- Course Project: Proposal: 4%; Presentation: 10%; Report: 32%
- Exam: 12%
- Paper Presentation: 10%

## POLICIES and RULES

- Attendance at all lectures and presentations is mandatory, except in exceptional circumstances such as emergencies or by prior agreement.
- Late submission of assignments and project proposal: 10% deduction for each of the first 5 days beyond the due time; submissions that are late for more than 5 days will not be accepted.
- Exam, presentations, and report: late delivery will not be accepted.
- **All submissions are handled electronically through Brightspace.**
- All the Carleton's policies on academic accommodations and academic integrity hold for this course. All these matters will be handled by appropriate authorities. If you have any questions regarding these issues, please reach out to the Administrative Staff at the School of CS.

- Most of the assessed activities in this course were designed for independent completion by an individual (for assignments, exam, and paper presentation) or a group (for course project). Unless explicitly specified, utilizing any AI systems (e.g., ChatGPT, Google Gemini, etc.) to generate automated solutions will be considered academic misconduct.

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Brightspace access for University of Ottawa Students: Please see information here:

<https://gradstudents.carleton.ca/faculty-of-graduate-and-postdoctoral-affairs-access-to-brightspace/>

For information about Carleton's academic year, including registration and withdrawal dates, see [Carleton's Academic Calendar](#).

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: <https://carleton.ca/scs/tech-support/computer-laboratories/>. All SCS computer lab and technical support information can be found at: <https://carleton.ca/scs/tech-support/>. Technical support staff may be contacted in-person or virtually; see details: <https://carleton.ca/scs/tech-support/contact-it-support/>.

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## University Policies:

- **Academic Accommodations**

Carleton is committed to providing academic accessibility for all individuals. Please review the academic accommodation available to students here: <https://students.carleton.ca/course-outline/>.

- **Academic Integrity**

**Student Academic Integrity Policy.** Every student should be familiar with the Carleton University Student Academic Integrity policy. A student found in violation of academic integrity standards may be sanctioned with penalties which range from a reprimand to receiving a grade of F in the course, or even being suspended or expelled from the University. Examples of punishable offences include plagiarism and unauthorized collaboration. Any such reported offences will be reviewed by the office of the Dean of Science. More information on this policy may be found on the ODS Academic Integrity page: [Academic Integrity | Faculty of Science \(carleton.ca\)](#).

**Plagiarism.** As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean of Science. More information and standard sanction guidelines can be found here: <https://science.carleton.ca/students/academic-integrity/>. Please note that content generated by an unauthorized A.I.-based tool \*is\* considered plagiarized material.

**Unauthorized Collaboration.** Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis".