COMP 5116: Machine Learning

TITLE: Machine Learning

LECTURES: Wednesday 2:35pm-5:25pm, Location: Please check Carleton Central or Brightspace.

INSTRUCTOR: Yuhong Guo, YuhongGuo(at)cunet.carleton.ca, office: HP5434

BEST WAYS TO BE IN TOUCH: in class, via email, or during office hours

OFFICE HOURS: Information is given on Brightspace

COURSE WEBSITE: https://brightspace.carleton.ca/d2l/home/369355

COURSE SCHEDULE PAGE: Follow the link or see 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

Learning Material	Options for Purchasing (e.g., Bookstore, Used, etc.)	Approximate Cost
Machine Learning: A Probabilistic Perspective, by Kevin Murphy. MIT Press, 2012.	Bookstore, Amazon	$99 (new) $52 (used)
The Elements of Statistical Learning, by Trevor Hastie, Robert Tibshirani, Jerome Friedman. Second edition, Springer-Verlag New York, 2009.	Bookstore (optional)	no need to purchase
Pattern Recognition and Machine Learning, by Christopher M. Bishop. Springer-Verlag New York, 2006	Bookstore (optional)	no need to purchase

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%;
- Exam: 12%
- Paper Presentation: 10%

    Presentation: 10%;   Report: 32%

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 it is explicitly stated otherwise, the use of any AI system will be considered academic misconduct. This includes, but is not limited to, chatbots or code generators (e.g., ChatGPT, Google Gemini, Microsoft Copilot), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E), etc. An exception to the above rule is made for automated grammar and punctuation checking tools (such as Grammarly).

- Important dates and deadlines can be found here: [Dates, Deadlines, and Regulations—Registrar's Office](#), including class suspension for fall, winter breaks, and statutory holidays.

- Brightspace access for University of Ottawa Students: Please see information here: https://gradstudents.carleton.ca/faculty-of-graduate-and-postdoctoral-affairs-access-to-brightspace/

- University of Ottawa Students who need access to SCS IT resources such, as OpenStack and Nextcloud, must submit a request to SCS Tech Support SCS.Tech.Support@cunet.carleton.ca. The request must be sent from their @cmail.carleton.ca email address and the email should say which resource is required and for which course (including section).

- 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/.

- The Graduate Advisors for the School of Computer Science are available in Room 5302 HP; or by email at grad.scs@carleton.ca. The graduate advisors can assist with understanding your academic audit and the remaining courses required to meet graduation requirements.

- The [Carleton Wellness Website](#) includes resource regarding mental health and wellness.

Academic Accommodations and Regulations

- **Academic Accommodations**

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (https://students.carleton.ca/course-outline/).

- **Academic Integrity**

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in [Carleton University's Academic Integrity Policy](). A list of standard sanctions in the Faculty of Science can be found [here](). Additional details about this process can be found on [the Faculty of Science Academic Integrity website.]() Students are expected to familiarize themselves with and abide by [Carleton University's Academic Integrity Policy]().

- **Student Rights & Responsibilities**

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the [7 Rights and Responsibilities Policy]() for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.