ORIGINAL COURSE IMPLEMENTATION DATE: November 1999
REVISED COURSE IMPLEMENTATION DATE: September 2026
COURSE TO BE REVIEWED (six years after UEC approval)**:** March 2032
Course outline form version: 29/08/2024

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: COMP 381	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Introduction to Machine Learning **Course Short Title:** Intro to Machine Learning	
Faculty: Faculty of Business and Computing	**Department/School:** School of Computing

Calendar Description:

Programming computers to learn from data and experience, with applications from spam detection to speech recognition. Emphasis on implementing machine learning algorithms, ethical practices, and Indigenous perspectives in data use and sovereignty.

Prerequisites (or NONE):	COMP 251 and (STAT 106 or STAT 270). Note: Students who do not have the required courses but have been admitted to one of the following programs can contact the department for permission to register: Data Analysis post-baccalaureate certificate, Artificial Intelligence and Machine Learning post-baccalaureate diploma, Cybersecurity post-baccalaureate diploma, or Software Engineering post-baccalaureate diploma.
Corequisites (if applicable, or NONE):	None.
Pre/corequisites (if applicable, or NONE):	None.

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number:

Cross-listed with:

Equivalent course(s):

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	45
Total hours	**45**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: **No**

Course Details

Special Topics course: **No**

(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **Yes; no limit on repeats**

(See policy 207 for more information.)

Grading System: **Letter grades**

Delivery Mode: **May be offered in multiple delivery modes**

Expected frequency: **Every semester**

Maximum enrolment (for information only)**: 35**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Transfer Credit *(See bctransferguide.ca.)*

Transfer credit already exists: **No**

Submit outline for (re)articulation: **No**

(If yes, fill in transfer credit form.)

Department approval	**Date of meeting:**	January 2026
Faculty Council approval	**Date of meeting:**	January 16, 2026
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 27, 2026

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Explore large amounts of data using a systematic approach
2. Implement classification, regression and clustering models.
3. Implement a simple recommendation system.
4. Evaluate machine learning performance.
5. Use existing machine learning toolkits.
6. Evaluate the social and ethical impacts of machine learning, particularly with respect to indigenous data sovereignty and respectful use of Indigenous knowledge.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Final exam:	30%	Assignments:	30%	Quizzes/tests/midterm:	20%
Project:	20%		%		%

Details: Assignments include 10% in-class exercises.

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures, in-class exercises, and assignments involving the use of machine learning algorithms.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	Book	James, G.	Introduction to Statistical Learning, Springer	2023
2.	Book	Flach, P.	Machine Learning, Cambridge	2012
3.	Book	Ian Goodfellow Yoshua Bengio, Aaron Courville	Deep Learning MIT Press book	2016
4.	Book	Murphy, K.	Machine Learning, MIT	2023
5.	Book	Walter, M., Kukutai, T., Carroll, S. R., and Rodriguez-Lonebear, D	Indigenous Data Sovereignty and Policy	2021

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

None

Course Content and Topics

- Linear regression
- The perceptron
- Logistic regression
- K-nearest neighbours
- Regularization
- Neural networks
- Support vector machines
- Non-parametric models
- Clustering
- Ethical machine learning, Indigenous data sovereignty, and cultural perspectives in machine learning