	Date	Initials
Prepared by Instructor	8/27/2021	YP
Approved by Head	3-Sep	amk

1. Calendar Information

ENSF 611
Machine Learning for Software Engineers

Covers Machine Learning, which focuses on developing machine learning applications, specifically in the engineering domain. Covers basic techniques for supervised and unsupervised learning, with the emphasis on the applied aspects of the techniques.

Course Hours: 3 units; H (3-2)
Academic Credit: 3
Calendar Reference: http://www.ucalgary.ca/pubs/calendar/current/engineering.html

2. Learning Outcomes

At the end of this course, you will be able to:

1   Produce code using machine learning libraries.
2   Select and construct machine learning pipelines for engineering tasks.
3   Analyze machine learning model evaluation outcomes to optimize performance.
4   Document machine learning workflow and results.

3. Timetable

Section	Day(s) of the Week	Time	Location
L01	MW	15:30-16:45	ST 147
B01	M	12:00-13:50	ICT 319

4. Course Instructors

Course Coordinator

Section	First Name	Family Name	Phone	Office	Email
L01	Yves	Pauchard			yves.pauchard@ucalgary.ca

Other Instructors

Section	First Name	Family Name	Phone	Office	Email

Teaching Assistants

Section	First Name	Family Name	Phone	Office	Email

5. Assessments

In this course there are 5 assignment components, as well as a project as outlined further in the course schedule (D2L). Additionally, 5 asynchronous quizzes are written. Best 4 of 5 quizzes count towards the Quizzes component. Quizzes are open-book and open-notes, and will be completed on d2l. You need access to a computer and internet. Quizzes will be available for a period of 24h from 5pm - 5pm (next day). There is no time limit, recommended time is 30min. Here are the details:

Quiz 1
Start date/time: Sept 23, 5:00pm
Due date/time: Sept 24, 5:00pm
Quiz length: No time limit, 30min recommended. Time Extension: Not applicable.
Instructor availability: via email Sept 24, 9am – 10am

Quiz 2
Start date/time: Oct 07, 5:00pm
Due date/time: Oct 08, 5:00pm
Quiz length: No time limit, 30min recommended. Time Extension: Not applicable.
Instructor availability: via email Oct 08, 9am – 10am

Quiz 3
Start date/time: Oct 21, 5:00pm
Due date/time: Oct 22, 5:00pm
Quiz length: No time limit, 30min recommended. Time Extension: Not applicable.
Instructor availability: via email Oct 22, 9am – 10am

Quiz 4
Start date/time: Nov 04, 5:00pm
Due date/time: Nov 05, 5:00pm
Quiz length: No time limit, 30min recommended. Time Extension: Not applicable.
Instructor availability: via email Nov 05, 9am – 10am

Quiz 5
Start date/time: Nov 18, 5:00pm
Due date/time: Nov 19, 5:00pm
Quiz length: No time limit, 30min recommended. Time Extension: Not applicable.
Instructor availability: via email Nov 19, 9am – 10am

There is no midterm and no final exam.

During exams/quizzes, students are permitted access to: Lecture material, notes, textbooks, reading/searching internet.

During exams/quizzes, students are **not permitted** to: Communicate in any way with others.

6. Use of Calculators in Examinations

Any type of hand-held calculator may be used during quizzes.

7. Final Grade Determination

The final grade in this course will be based on the following components:

Component	Learning Outcome(s) Evaluated	Weight
Assignments	1, 2, 3, 4	40%
Quizzes	1, 2, 3	40%
Project	1, 2, 3, 4	20%

Total: | 100% |

Notes:

Conversion from a score out of 100 to a letter grade will be done using the conversion chart shown below. This grading scale can only be changed during the term if the grades will not be lowered.

Letter Grade	Total Mark (T)
A+	$T \geq 97.0\%$
A	$92.0\% \leq T < 97.0\%$
A-	$90.0\% \leq T < 92.0\%$
B+	$85.0\% \leq T < 90.0\%$
B	$80.0\% \leq T < 85.0\%$
B-	$75.0\% \leq T < 80.0\%$
C+	$70.0\% \leq T < 75.0\%$
C	$65.0\% \leq T < 70.0\%$
C-	$60.0\% \leq T < 65.0\%$
D+	$55.0\% \leq T < 60.0\%$
D	$50.0\% \leq T < 55.0\%$
F	$T < 50.0\%$

8. Textbook

The following textbook(s) is required for this course:

Title	
Author(s)	
Edition, Year	
Publisher	

Title	
Author(s)	
Edition, Year	
Publisher	

The following textbook(s) is recommended for this course:

Title	Introduction to Machine Learning with Python

Author(s)	Andreas C Mueller and Sarah Guido
Edition, Year	First, 2016
Publisher	O'Reilly

Title	Python Data Science Handbook
Author(s)	Jake VanderPlaes
Edition, Year	First, 2016
Publisher	O'Reilly

9. University of Calgary Policies and Supports

*SSE ADVISING AND POLICIES

All Schulich School of Engineering students have access to a D2L site titled "Engineering Student Centre". Students have a responsibility to familiarize themselves with the policies available on this site.

*ACADEMIC MISCONDUCT

Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

For information on the Student Academic Misconduct Policy and Procedure please visit:
https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Policy.pdf
https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Procedure.pdf
Additional information is available on the Academic Integrity Website at https://ucalgary.ca/student-services/student-success/learning/academic-integrity.

*ACADEMIC ACCOMODATION

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf.
Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for Accommodations for Students with Disabilities (https://www.ucalgary.ca/policies/files/policies/https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf). SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

*INSTRUCTOR INTELLECTUAL PROPERTY
Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

*FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY
Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.

*COPYRIGHT LEGISLATION
All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf) and requirements of the copyright act (https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Non-Academic-Misconduct-Policy.pdf.

*MEDIA RECORDING (if applicable)
Please refer to the following statement on media recording of students: https://elearn.ucalgary.ca/wp-content/uploads/2020/05/Media-Recording-in-Learning-Environments-OSP_FINAL.pdf

*Media recording for lesson capture
The instructor may use media recordings to capture the delivery of a lecture. These recordings are intended to be used for lecture capture only and will not be used for any other purpose. Although the recording device will be fixed on the Instructor, in the event that incidental student participation is recorded, the instructor will ensure that any identifiable content (video or audio) is masked, or will seek consent to include the identifiable student content to making the content available on University approved platforms.

*Media recording for self-assessment of teaching practices
The instructor may use media recordings as a tool for self-assessment of their teaching practices. Although the recording device will be fixed on the instructor, it is possible that student participation in the course may be inadvertently captured. These recordings will be used for instructor self-assessment only and will not be used for any other purpose.

*Media recording for the assessment of student learning
The instructor may use media recordings as part of the assessment of students. This may include but is not limited to classroom discussions, presentations, clinical practice, or skills testing that occur during the course. These recordings will be used for student assessment purposes only and will not be shared or used for any other purpose.

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SEXUAL VIOLENCE POLICY
The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. The University of Calgary's sexual violence policy guides us in how we respond to incidents of sexual violence, including supports available to those who have experienced or witnessed sexual violence, or those who are alleged to have committed sexual violence. It provides clear response procedures and timelines, defines complex concepts, and addresses incidents that occur off-campus in certain circumstances. Please see the policy available at https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Sexual-and-Gender-Based-Violence-Policy.pdf

*OTHER IMPORTANT INFORMATION
Please visit the Registrar's website at: https://www.ucalgary.ca/registrar/registration/course-outlines for additional important information on the following:
• Wellness and Mental Health Resources
• Student Success
• Student Ombuds Office
• Student Union (SU) Information
• Graduate Students' Association (GSA) Information
• Emergency Evacuation/Assembly Points
• Safewalk

10. Statements Specific to Fall 2021

Course Format and Scheduling
Course content will be delivered in-person during the registrar-scheduled class times in assigned locations. In-person sessions will be streamed via Zoom for synchronous remote delivery. All sessions will be recorded and available on the course d2l page. Students are expected to follow course material through one of these means. Please see the course d2l page for details on accessing the synchronous class sessions.

Expectations for Attendance and Engagement in Sessions
Active engagement in class and with course material is essential in any course. In the online context, students must take increased ownership of their learning.
Expectations for attendance at synchronous sessions are the same as they are in a face-to-face course. Students are expected to adhere to class norms. These include:
-Keeping the microphone on mute unless called on by the instructor (or participating in oral discussion)
-Using the features and tools in Zoom as requested by the instructor
-Communicating in a professional and respectful manner at all times

Guidelines for Completing and Submitting Coursework

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Quizzes wil be completed on d2l.

Assignments will be submitted using git and github. Once complete, the process is finalized by submission to d2l dropbox. This workflow will be further explained in the beginning of the course.

11. Additional Course Information