UNIVERSITY OF ALBERTA

CMPUT 267 LEC B1
Winter 2026

Instructor: Xiao-Bo Li

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Office Hours: https://meet.google.com/ftb-zrqn-ydb Friday 10AM - 11 AM or by appointment. Please provide two time slots of availability and I will choose one.

Lecture Room & Time: CCIS 1-440, Tuesdays and Thursdays 2:00 PM - 3:20 PM

Teaching Assistant(s):

	email (add @ualberta.ca)	Office Hours
Ian Vyse (Lead TA 1)	ivyse	Tuesday 9:00 AM - 10:00 AM (Virtual)
Erturk Ocak (Lead TA 2)	ocak	Wednesday 11:00 AM - 12:00 PM (Virtual)
Marzieh Ghayour Najafabadi	ghayourn	Thursday 3 PM - 4 PM (Virtual)
Kushagra Chandak	kchandak	Monday 4 PM - 5 PM (Virtual)
Guoqing Luo	gluo	Thursday 9:00-10:00 AM (virtual)
Animesh Kumar Paul	animeshk	Thursday 11:00 - 1:00 PM (UComm 3-136)
Kaining Yang	kaining	Tuesday 10:00am - 11:00am (Virtual)
Kiarash Aghakasiri	aghakasi	Friday 9:00am - 10:00
Zong Lin Yu	zonglin1	Monday 2:00pm—3:00pm Thursday 5:00pm—6:00pm
Prem Elango	pelango	Tuesday 1:00pm - 2:00pm Thursday 1:00pm - 2:00pm

		Wednesday 2:00 PM - 4:00 PM (Virtual)
Aldo Furlani	furlani	
Saksham Anand	saksham5	Tuesday 2:00pm-3:00pm

TERRITORIAL ACKNOWLEDGEMENT

The University of Alberta respectfully acknowledges that we are located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples including the Cree, Blackfoot, Métis, Nakota Sioux, Iroquois, Dene, Ojibway/ Saulteaux/Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

COURSE CONTENT

Calendar Description:

This course introduces the fundamental statistical, mathematical, and computational concepts in analyzing data. The goal for this introductory course is to provide a solid foundation in the mathematics of machine learning, in preparation for more advanced machine learning concepts. The course focuses on univariate models, to simplify some of the mathematics and emphasize some of the underlying concepts in machine learning, including: how should one think about data, how can data be summarized, how models can be estimated from data, what sound estimation principles look like, how generalization is achieved, and how to evaluate the performance of learned models.
Prerequisites: CMPUT 174 or 274; one of MATH 100, 114, 117, 134, 144, or 154.
Corequisites: CMPUT 175 or 275; CMPUT 272; MATH 102, 125 or 127; one of STAT 151, 161, 181, 235, 265, SCI 151, or MATH 181.

LEARNING RESOURCES

Required Course Materials: The course notes are provided on Canvas.

Course Schedule & Assigned Readings:

Topic	Readings
Topic 1: Probability	Chapter 2

Topic 2: Estimation	Chapter 3
Topic 3: Formalizing Parameter Estimation	Chapter 5 (Note different ordering from Course Notes)
Topic 4: Optimization	Chapter 4
Topic 5: Stochastic Gradient Descent	Chapter 6
Topic 6: Introduction to Prediction Problems	Chapter 7
Topic 7: Optimal Predictors	Chapter 7
Topic 8: Linear Regression	Chapter 8
Topic 9: Polynomial Regression	Chapter 8
Topic 10: Generalization Error	Chapter 9
Topic 11: Testing Statistical Significance	Chapter 9
Topic 12: Regularization	Chapter 10
Topic 13: Logistic Regression	Chapter 11
Topic 14: Bayesian Linear Regression	Chapter 12

GRADE EVALUATION

Assessment	Weight	Due Date
Assignment 1	10%	Feb 13, 2026
Assignment 2	10%	Feb 27, 2026
Assignment 3	10%	March 20, 2026
Assignment 4	10%	April 3, 2026
Midterm	25%	Written on Mar 5, 2026
Final	35%	Scheduled by Registrar
TOTAL	100%	

Students must verify the date of the Final Exam on BearTracks when the Final Exam Schedule is posted.

Grades are unofficial until approved by the Department and/or Faculty offering the course.

Re-examination:

There is no possibility of a re-examination in this course.

University of Alberta Grading Policy
Grades reflect judgments of student achievement made by instructors and must correspond to the associated descriptor. These judgements are based on a combination of absolute achievement and relative performance in a class. Faculties may define acceptable grading practices in their disciplines. Such grading practices must align with the University of Alberta Assessment and Grading Policy and its procedures.

Course Grades Obtained by Undergraduate Students:
This table reflects the GPA Point Value and Descriptor (e.g., Excellent, Good) for each Letter Grade.

Descriptor	Letter Grade	Grade Point Value
Excellent	A+	4.0
Excellent	A	4.0
Excellent	A-	3.7
Good	B+	3.3
Good	B	3.0
Good	B-	2.7
Satisfactory	C+	2.3
Satisfactory	C	2.0
Satisfactory	C-	1.7
Poor	D+	1.3
Minimal Pass	D	1.0
Failure	F or F4	0.0

Note: F4 denotes eligibility of a student to apply for a re-examination in a course.

Course Grades Obtained by Graduate Students:
This table reflects the GPA Point Value and Descriptor (e.g., Excellent, Good) for each Letter Grade.

Descriptor	Letter Grade	Grade Point Value
Excellent	A+	4.0
Excellent	A	4.0
Excellent	A-	3.7
Good	B+	3.3
Good	B	3.0
Satisfactory	B-	2.7

Satisfactory	C+	2.3
Failure	C	2.0
Failure	C-	1.7
Failure	D+	1.3
Failure	D	1.0
Failure	F	0.0

Statement of Expectations for AI Use:

In this course, our primary focus is to cultivate an equitable, inclusive, and accessible learning community that emphasizes individual critical thinking and problem-solving skills. To ensure a fair and consistent learning experience for all students, the use of advanced Generative Artificial Intelligence (AI) tools such as ChatGPT or Dall-E 2 is **strictly prohibited** for all academic (written/coding/creative/etc.) work, assignments, and assessments in this course. Each student is expected to complete all tasks without substantive assistance from others, including AI tools.

Any use of AI tools in your academic work may result in academic penalties and be considered an act of cheating and a violation as outlined in the Student Academic Integrity Policy.

Important: Please note that AI use is strictly prohibited in course work, assignments, and assessments. Failure to abide by this guideline may be considered an act of cheating and a violation as outlined in the Student Academic Integrity Policy.

Re-evaluation of Term Work:

If you feel a marking error has occurred, you may request a remark within 10 days of receiving your mark.

However, clerical errors such as incorrectly computing or recording a mark may be raised at any time prior to 2 working days following the final exam. It is the student's responsibility to confirm that their term work has been recorded properly.

For assignment reevaluation, please contact the TA that marked your question.

For midterm reevaluation, please contact Ian Vyse ivyse@ualberta.ca.

POLICIES FOR LATE AND MISSED WORK

Late Policies:

Late submissions of assignments are not allowed.

Missed Term Work/Final Exam Due to Non-medical Protected Grounds (e.g., religious beliefs):
When a term assessment or final exam presents a conflict based on [non-medical protected grounds](#), students can register with the Academic Success Centre for accommodations via their [Register for Accommodations](#) website. Students can review their eligibility and choose the registration process specific for Accommodations Based on Non-medical Protected Grounds.

It is imperative that students review the dates of all course assessments upon receipt of the course syllabus, and register AS SOON AS POSSIBLE to ensure the timely application of the accommodation. Students who register later in the term may experience unavoidable delays in the processing of the application, which can affect the accommodation.

Missed Term Work:

Much of the material of this course builds on each other, so you must try your best to complete all assessments.

A student who cannot complete assignments or the midterm due to incapacitating illness, severe domestic affliction, or other compelling reasons must contact one of the lead TAs within two working days of missing the assessment, or as soon as possible, to request an excused absence (EA).

- For assignment EAs, contact Erturk Ocak at ocak@ualberta.ca
- For midterm EA, contact Ian Vyse at ivyse@ualberta.ca

One EA is allowed for assignments, and one EA is allowed for the midterm, for a maximum total of **two EAs for the entire course**. If an excused absence is granted, then:
- assignment weight will be redistributed among the other assignments,
- midterm weight will be shifted to the final.

An excused absence is a privilege and not a right. There is no guarantee that an absence will be excused. Misrepresentation of facts to gain an excused absence is a serious breach of the [Student Academic Integrity Policy](#). In all cases, instructors may request adequate documentation to substantiate the reason for the absence, at their discretion.

Deferred Final Examination:
A student who cannot write the final examination due to incapacitating illness, severe domestic affliction, or other compelling reasons can apply for a deferred final examination. Such an application must be made **to the student's home Faculty Office within two working days** of

the missed exam and must be supported by appropriate documentation or a Statutory Declaration (see calendar on [Attendance](#)). Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. The Faculty may deny deferral requests in cases where less than 50% of term work has been completed. Misrepresentation of facts to gain a deferred examination is a serious breach of the [Student Academic Integrity Policy](#).

A deferred final exam, if granted, will be held on **Friday, May 8, 2026 @ 11 AM**.

STUDENT RESPONSIBILITIES

Academic Integrity and Student Conduct:
The University of Alberta is committed to the highest standards of academic integrity and honesty, as well as maintaining a learning environment that fosters the safety, security, and inherent dignity of each member of the community, ensuring students conduct themselves accordingly. Students are expected to be familiar with the standards of academic honesty and appropriate student conduct, and to uphold the policies of the University in this respect.

Students are particularly urged to familiarize themselves with the provisions of the [Student Academic Integrity Policy](#) and the [Student Conduct Policy](#), and avoid any behaviour that could potentially result in suspicions of academic misconduct (e.g., cheating, plagiarism, misrepresentation of facts, participation in an offence) and non-academic misconduct (e.g., discrimination, harassment, physical assault). Academic and non-academic misconduct are taken very seriously and can result in suspension or expulsion from the University.

All students are expected to consult the [Academic Integrity website](#) for clarification on the various academic offences. All forms of academic dishonesty are unacceptable at the University. Unfamiliarity of the rules, procrastination or personal pressures are not acceptable excuses for committing an offence. Listen to your instructor, be a good person, ask for help when you need it, and do your own work -- this will lead you toward a path to success. Any academic integrity concern in this course will be reported to the College of Natural and Applied Sciences.

Suspected cases of non-academic misconduct will be reported to the Office of Student Success and Experience. The College, the Faculty, and the Dean of Students are committed to student rights and responsibilities, and adhere to due process and administrative fairness, as outlined in the [Student Academic Integrity Policy](#) and the [Student Conduct Policy](#). Please refer to the policy websites for details on inappropriate behaviours and possible sanctions.

The College of Natural and Applied Sciences (CNAS) has created an [Academic Integrity for CNAS Students](#) website. To access this website, students must be signed in to their UAlberta account. Website content includes the importance of academic integrity, examples of academic misconduct and possible sanctions, and the academic misconduct and appeal process.

Students can also access this material as an [online, self-directed Canvas course](#) and complete assessments to test their knowledge.

"Integrity is doing the right thing, even when no one is watching" -- C.S. Lewis

Contract Cheating and Misuse of University Academic Materials or Other Assets:
Contract cheating describes the form of academic dishonesty where students get academic work completed on their behalf, which they submit for academic credit as if they had created it themselves. Contract cheating may or may not involve the payment of a fee to a third party, who then creates the work for the student.

Examples include:
1. Getting someone to write an essay or research paper for you.
2. Getting someone to complete your assignment or exam for you.
3. Posting an essay, assignment, or exam question to a tutorial or study website; the question is answered by a "content expert", then you copy it and submit it as your own answer.
4. Posting your solutions to a tutorial/study website, public server, or group chat and/or copying solutions that were posted to a tutorial/study website, public server, or group chat.
5. Sharing your login credentials to the course management system (e.g., Canvas) and allowing someone else to complete your assignment or exam remotely.
6. Using an artificial intelligence bot or text generator tool to complete your essay, research paper, assignment, or exam solutions for you (without the instructor's permission).
7. Using an online grammar checker to "fix" your essay, research paper, assignment, or exam solutions for you (without the instructor's permission).

Contract cheating companies thrive on making students believe that they cannot succeed without their help; they attempt to convince students that cheating is the only way to succeed.

Uploading the instructor's teaching materials (e.g., course outlines, lecture slides, assignment, or exam questions, etc.) to tutorial, study or note-sharing websites, public servers, or chat apps is a copyright infringement and constitutes the misuse of University academic materials or other assets. Receiving assignment solutions or answers to exam questions from an unauthorized source puts you at risk of receiving inaccurate information.

Appropriate Collaboration:
Students need to be able to recognize when they have crossed the line between appropriate collaboration and inappropriate collaboration. If students are unsure, they need to ask instructors to clarify what is allowed and what is not allowed.

Here are some tips to avoid copying on assessments:
1. Do not write down something that you cannot explain to your instructor.

2. When you are helping other students, avoid showing them your work directly. Instead, explain your solution verbally. Allowing your work to be copied is also considered inappropriate collaboration.
3. It is also possible that verbally discussing the solution in too much detail may result in written responses that are too similar. Try to keep discussions at a general or higher level.
4. If you find yourself reading another student's solution, do not write anything down. Once you understand how to solve the problem, remove the other person's work from your sight and then write up the solution to the question yourself. Looking back and forth between someone else's paper and your own paper is almost certainly copying and considered inappropriate collaboration.
5. If the instructor or TA writes down part of a solution in order to help explain it to you or the class, you cannot copy it and hand it in for credit. Treat it the same way you would treat another student's work with respect to copying, that is, remove the explanation from your sight and then write up the solution yourself.
6. There is often more than one way to solve a problem. Choose the method that makes the most sense to you rather than the method that other students happen to use. If none of the ideas in your solution are your own, there is a good chance it will be flagged as copying.

Exam Conduct:
Please refer to the [Examinations](#) section of the Academic Calendar for more details on Conduct of Exams.

Some key points to be aware of:
- Your student photo ID is required at exams to verify your identity.
- Students must arrive at the specified time to take the exam. Once the exam has started, students must remain in the physical in-person or remote environment for at least 30 minutes. Students who arrive more than 30 minutes late for an in-person exam will not be permitted to take the exam. Students who arrive more than 30 minutes late for an online exam may have their exam attempt removed or disqualified by the instructor. In both cases, students may apply for a deferred examination.
- All cell phones must be turned off and stored in your bags.

Accommodations for Students:
In accordance with the University of Alberta's [Accommodation Policy](#) and [Discrimination and Harassment Policy](#), accommodation support is available to eligible students who encounter limitations or restrictions to their ability to perform the daily activities necessary to pursue studies at a post-secondary level due to medical conditions and/or non-medical protected grounds. Accommodations are coordinated through the [Academic Success Centre](#), and students can learn more about eligibility on the [Register for Accommodations website](#).

It is recommended that students apply *AS SOON AS POSSIBLE* in order to ensure sufficient time to complete accommodation registration and coordination. Students are advised to review and adhere to published deadlines for accommodation approval and for specific accommodation requests (e.g., exam registration submission deadlines). Students who request accommodations less than a month in advance of the academic term for which they require accommodations may experience unavoidable delays or consequences in their academic programs, and may need to consider alternative academic schedules.

Recording and/or Distribution of Course Materials:
Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content authors.

STUDENT SUPPORTS

Faculty of Science Student Services:
The Faculty of Science Student Services office is located on the main floor of the Centennial Centre for Interdisciplinary Sciences (CCIS). This office can assist with the planning of Your Academics, and provide information related to Student Life & Engagement, Internship and Careers, and Study Abroad opportunities. Please visit Advising for more information about what Faculty Academic Advisors can assist you with.

Academic Success Centre:
The Academic Success Centre provides professional academic support to help students strengthen their academic skills and achieve their academic goals. Individual advising, appointments, and group workshops are available year round in the areas of Accessibility, Communication, Learning, and Writing Resources. Modest fees may apply for some services.

Feeling Stressed, Anxious, or Upset?
It's normal for us to have different mental health experiences throughout the year. Know that there are people who want to help. You can reach out to your friends and access a variety of supports available on and off campus at the Need Help Now webpage or by calling the 24-hour Distress Line: 780-482-4357 (HELP).

Learning and Working Environment:
The Faculty of Science is committed to ensuring that all students, faculty and staff are able to work and study in an environment that is safe and free from discrimination, harassment, and

violence of any kind. It does not tolerate behaviour that undermines that environment. This includes virtual environments and platforms.

If you are experiencing harassment, discrimination, fraud, theft or any other issue and would like to get confidential advice, please contact any of these campus services:

- [Office of Safe Disclosure & Human Rights](): *A safe, neutral and confidential space to disclose concerns about how the University of Alberta policies, procedures or ethical standards are being applied. They provide strategic advice and referral on matters such as discrimination, harassment, duty to accommodate and wrong-doings. Disclosures can be made in person or online using the [Online Reporting Tool]().*
- [University of Alberta Protective Services](): *Peace officers dedicated to ensuring the safety and security of U of A campuses and community. Staff or students can contact UAPS to make a report if they feel unsafe, threatened, or targeted on campus or by another member of the university community.*
- [Office of the Student Ombuds](): *A confidential and free service that strives to ensure that university processes related to students operate as fairly as possible. They offer information, advice, and support to students, faculty, and staff as they deal with academic, discipline, interpersonal, and financial issues related to student programs.*
- [Office of Student Success and Experience](): *They can assist students in navigating services to ensure they receive appropriate and timely resources. For students who are unsure of the support they may need, are concerned about how to access services on campus, or feel like they may need interim support while they wait to access a service, this office is there to help.*

Course Outlines:
Policy about course outlines can be found in the [Academic Regulations, Evaluation Procedures and Grading section]() of the University Calendar.

Disclaimer:
Any typographical errors in this syllabus are subject to change and will be announced in class and/or posted on the course website. The date of final examinations is set by the Registrar and takes precedence over the final examination date reported in the syllabus.

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Dr. Xiao-Bo Li, Department of Computing Science, Faculty of Science, University of Alberta (2026).