

# **University of Alberta**

## **MATH 509 Winter 2025**

**Instructor:** Carlos Contreras

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**Office Hours:** After the lecture

**Lecture Room & Time:** CAB 269 Tuesday and Thursday 5:00PM - 6:20PM

### **COURSE CONTENT**

#### **Course Description:**

Basic data analysis with R, SAS, and Python. Program development with Jupyter notebooks. Cloud computing, collaborative software development. Technologies will be updated as new developments arise.

#### **Course Prerequisites:**

No programming skills are needed.

#### **Course Objectives and Expected Learning Outcomes:**

Our main objective is to gain familiarity with programming and computing in the context of data science. For specific objectives and learning outcomes, see the weekly topics listed in eClass.

#### **Course Schedule & Assigned Readings:**

See eClass. The topics and reading material will be posted in the section titled for each of the 14 weeks of the semester.

## **LEARNING RESOURCES**

### **Required Textbook and/or Other Major Course Materials:**

Statistical Rethinking (Second Edition): A Bayesian Course with Examples in R and Stan Book, by Richard McElreath. ISBN 9780367139919

### **On-Line Homework Disclaimer:**

- On-line homework is a component of this course and is provided by a third-party company. Please be aware that this company will be storing assessment information that may be associated with you. As a way to protect your personal information, you will be assigned a random ID to enter into the system. Only the random ID, performance on the on-line homework and the affiliation to the University of Alberta for this random ID will be conveyed to the company. You are not required to provide any additional personal information to this company. If you have any concerns about this, please contact the instructor of the course.
- Students who wish to opt out of the use of the fee-for-service online homework system (where students pay the fee directly to the third-party provider and have unlimited access) have the option to ...

### **Optional Online Learning Resources:**

Additional learning resources aimed at facilitating student learning, and perhaps including formative assessment tools, are available from the textbook publisher and may be accessed for a fee paid by the student to the third-party provider (e.g., the textbook company). Students choosing to access and use the online resources should note the following:

1. Registration in the system and any monetary transactions are of your own accord and not the responsibility of the University.
2. Students should be mindful of protecting their personal information and should be aware of how their personal information might be used and/or shared.
3. Students MUST NOT use their @ualberta email address or CCID to register into the system and instead should use a non-identifying email address or account.

### **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 apply for some services.

## GRADE EVALUATION

Assessment	Weight	Date
Homework	40%	Weekly on Fridays
Midterm	30%	February 13, 2025
Final Project	30%	April 9, 2025

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

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

### Statement of Expectations for AI Use:

Any homework solutions generated in part or in full from any generative AI tool must be declared explicitly in the assignment. Sufficient details must be provided to duplicate the result. Commercial AI tools are not allowed on an exam unless explicitly stated otherwise.

### Re-evaluation of Term Work:

#### Re-examination:

A student who writes the final examination and fails the course may apply for a re-examination. Re-examinations are rarely granted in the Faculty of Science. Re-examinations are governed by [university-wide Academic Regulations](#) and [Faculty of Science Academic Regulations](#). Misrepresentation of Facts to gain a re-examination is a serious breach of the *Code of Student Behaviour*.

### Past or Representative Evaluative Material:

## POLICIES FOR LATE AND MISSED WORK

### Late Policies:

#### Missed Term Work or 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 must apply to the Academic Success Centre for accommodations via their [Register for Accommodations website](#). Students can review their eligibility and choose the application 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 apply **AS SOON AS POSSIBLE** to ensure the timely application of the accommodation. Students who apply later in the term may experience unavoidable delays in the processing of the application, which can affect the accommodation.

**Missed Homework:**

No late Homework will be accepted. Failure to complete an Homework on time for any reason will result in a mark of zero.

**Missed Midterm:**

A student who cannot complete Midterm due to incapacitating illness, severe domestic affliction or other compelling reasons must contact the instructor within two working days of missing the assessment, or as soon as possible, to request an excused absence. If an excused absence is granted, then a make-up exam may be taken within one week of the missed exam. 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 Code of Student Behaviour. In all cases, instructors may request adequate documentation to substantiate the reason for the absence at their discretion.

## **REMOTE DELIVERY CONSIDERATIONS**

**Technology for Remote Learning:**

To successfully participate in remote learning in this course, it is recommended that students have access to a computer with an internet connection that can support the tools and technologies the University uses to deliver content, engage with instructors, TAs, and fellow students, and facilitate assessment and examinations. Please refer to [Technology for Remote Learning - For Students](#) for details. If you encounter difficulty meeting the technology recommendations, please email the Dean of Students Office ([dosdean@ualberta.ca](mailto:dosdean@ualberta.ca)) directly to explore options and support.

Please contact the instructor by the add/drop deadline [INSERT DATE APPROPRIATE FOR YOUR COURSE] if you do not have access to the minimum technology recommended. The instructor will make arrangements for accommodating students who contact the instructor before this date. Failure to do so may result in a zero in any assessment that depends on the minimum technology.

**Remote Proctoring Consideration:**

We will use a remote proctoring service for exams. Your computer and environment will be

monitored during exams.

- You should arrange for a place to write timed exams without interruption. •
- Tablets and mobile devices are incompatible with remote proctoring services.

### **Recordings of Synchronous Activities:**

- Please note that class times for this course will be recorded. Recordings of this course will be used for the purposes of [add purposes, e.g. asynchronous learning, documenting conversation, etc.] and will be disclosed to other students enrolled in this section of the class [and add other people if these will be shared beyond students in class, e.g., Teaching Assistants, other instructors, etc.].
- Students have the right to not participate in the recording and are advised to turn off their cameras and audio prior to recording; they can still participate through text-based chat. It is recommended that students remove all identifiable and personal belongings from the space in which they will be participating.
- Recordings will be made available until [add the date by which you will delete these recordings, e.g., the end of term, Dec. 31, 2022, etc.] and accessible by [indicate where recordings are stored, e.g., zoom cloud storage, Google drive, etc.]. Please direct any questions about this collection to the instructor of this course.

### **Home-Based Lab Activities:**

As part of the learning experience in this course, you will be required to undertake certain activities in or around your place of residence. To ensure that you undertake the activity safely and fully informed of the risks, please review the University of Alberta's [Remote Learning Lab-Based Assignment Information Advisory](#). If you have questions or concerns, contact your instructor.

### **Student Resources for Remote Learning:**

Online learning may be new to you. Check out tips for success and find out more about online learning on the [Campus Life](#) page, and specifically on the [Academic Skills Online & Remote Delivery Resources](#) page.

## **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 the 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 [Code of Student Behaviour](#) 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) 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. Any suspected academic offence 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 Dean of Students. The College, the Faculty of Science, and the Dean of Students are committed to student rights and responsibilities, and adhere to due process and administrative fairness, as outlined in the Code of Student Behaviour and the Student Conduct Policy. Anyone who is found in violation is likely to receive a sanction. Typical sanctions for academic misconduct include conduct probation, a mark reduction or a mark of 0 on an assessment, a grade reduction or a grade of F in a course, a remark on the transcript, and a recommendation for suspension or expulsion. Sanctions for non-academic misconduct include conduct conditions, fines, suspension of essential or non-essential University services and resources, and suspension or expulsion from the University.

The College of Natural and Applied Sciences (CNAS) has created an [Academic Integrity for CNAS Students](#) eClass site. Students can enroll and review the various resources provided, including the importance of academic integrity, examples of academic misconduct & possible sanctions, the academic misconduct & appeal process, and a *Test yourself: Academic integrity quiz*.

### **Appropriate Collaboration:**

[there are 5 separate comments with instructions/considerations here, one for the heading and one for each bullet item]

### **Exam Conduct:**

- Your student photo I.D. is required at exams to verify your identity.
- Students will not be allowed to begin an examination after it has been in progress for 30 minutes. Students must remain in the exam room until at least 30 minutes has elapsed. ●
- All cell phones must be turned off and stored in your bags.
- You are not allowed to work with or copy from other students.
- Commercial AI tools are not allowed on an exam unless explicitly stated otherwise.

### **Cell Phones:**

Cell phones are to be turned off during lectures, labs and seminars.

### **Students Eligible for Accessibility-Related Accommodations:**

In accordance with the University of Alberta's [Discrimination, Harassment, and Duty to](#)

[Accommodate 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 early 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 author(s).

### **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 the Dean of Students](#): *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 you wait to access a service, the Dean of Students office is here to help.*

### **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).

### **Student Self-Care Guide:**

This [Self-Care Guide](#), originally designed by the Faculty of Native Studies, has broader application for use during students' learning. It provides some ideas and strategies to consider that can help navigate emotionally challenging or triggering material.

Policy about course outlines can be found in [Course Requirements, Evaluations Procedures and Grading](#) of the University Calendar.

### **Land Acknowledgement:**

The University of Alberta respectfully acknowledges that we are situated on Treaty 6 territory, traditional lands of First Nations and Métis people.

To learn more about the significance of this land acknowledgement, please read [this](#) useful article and associated links to more information.

### **Disclaimer:**

Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.

### **Copyright:**

Dr. Contreras, Department of Mathematics, Faculty of Science, University of Alberta (2025).