Chapter 0

Course Information.

Prof. Alex Alvarez, Ali Raisolsadat

School of Mathematical and Computational Sciences
University of Prince Edward Island

Stat 4110 - Statistical Simulation - Winter 2024

Instructor: Ali Raisolsadat
Office: TBD
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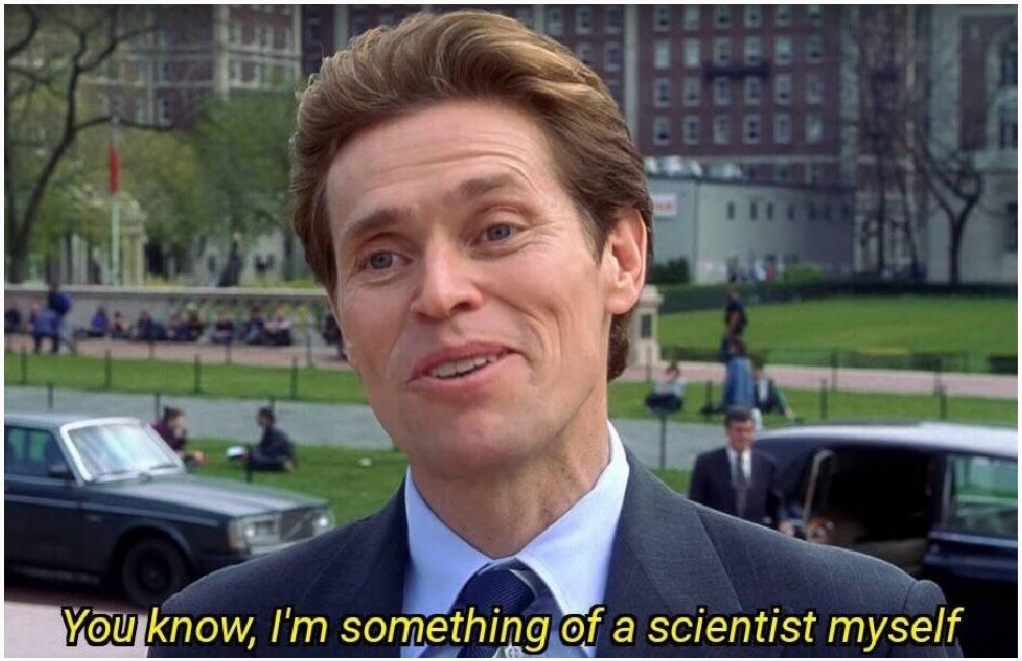
Lectures: M, W, F. 9:30 - 10:20, Cass Science Hall 101
Office hours: TBD

Who Am I?

I am Ali.

- Master of Mathematics (MMATH) in Computational Mathematics, Uwaterloo
- BSc in Actuarial Sciences, BSc in Financial Mathematics (UPEI)



Textbook:

Introduction to Statistical Computing by Jochen Voss

GitHub Site: All information regarding the course will be posted on my GitHub site on a regular basis. This includes the course outline, slides, schedule changes, information about tests, supporting materials, etc. The grades will be posted on Moodle.

Textbook Chapters to be covered in this course

Chapter 1: Random number generation.
Chapter 2: Simulating statistical models.
Chapter 3: Monte Carlo methods.
Chapter 4: Markov Chain Monte Carlo (MCMC) Methods - MCMC, Metropolis Algorithm, Metropolis-Hastings Algorithm
Chapter 5: Beyond Monte Carlo

Programming Languages

The preferred programming languages for this course are **R** and **Python**. I will provide lecture examples and their respective code through the term using both languages. The **homework** solutions will be given only in **Python** (please translate to R on your own time ;D - YOU CAN DO IT). You may use other software for this (i.e. MatLab, Java, etc).

Grading Scheme:

Two Assignments	15 % each	
One Mid-term Test	40%	**OR**
Four Quizzes	40%	
Final Project	30%	

- Two assignments (to be completed in about a week) will be given.
- There will be a Mid-term Test on Friday March 22nd. However, if class chooses the quiz option, then after each chapter there will be a quiz.
- There will be a Final Project (including an oral presentation during the last week of classes).

Crowdmark: In order to facilitate the workflow regarding some assessments in the course, we will be using an online tool called Crowdmark (`https://crowdmark.com`). Instructions on how to use Crowdmark will be provided before we use it for the first time.

Chat GPT:

The use of Chat GPT or other Large Language Models (LLM) in this course is not prohibited as part of the study process. However, I strongly discourage you to use it directly on Assignments to produce the final submitted code.

If during the process of marking, I suspect that an LLM was used (or if there are some indications of academic dishonesty) in the resolution of some problem(s), I reserve the right to meet with you and ask for clarifications and explanations about the code and other partes of your solution in order to find out whether you actually understand the results and/or algorithms.

This could even result in a substantial mark reduction if you do not show an understanding of the subject matter corresponding to the submitted work.