

SPRING 2023 - STAT 380 D100

INTRODUCTION TO STOCHASTIC PROCESSES (3)

Class Number: 5914 Delivery Method: In Person

COURSE TIMES + LOCATION:

Mo, We, Fr 9:30 AM – 10:20 AM
BLU 10021, Burnaby

EXAM TIMES + LOCATION:

Apr 24, 2023
3:30 PM – 6:30 PM
AQ 5030, Burnaby

INSTRUCTOR:

Richard Lockhart
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1 778 782-3264

PREREQUISITES:

STAT 330, or all of: STAT 285, MATH 208W, and MATH 251, all with a minimum grade of C-.

Description

CALENDAR DESCRIPTION:

Review of discrete and continuous probability models and relationships between them. Exploration of conditioning and conditional expectation. Markov chains. Random walks. Continuous time processes. Poisson process. Markov processes. Gaussian processes. Quantitative.

COURSE DETAILS:

Course Outline:

1. Review: Chapters 1,2,3 of text
2. Discrete Time Markov Chains
3. Poisson Processes
4. Continuous Time Markov Chains
5. Applications to Queuing and Renewal Theory
6. Introduction to Brownian Motion and Diffusion
7. Monte Carlo Simulation

Computing Requirements:

Students should feel comfortable in some programming environment, preferably R because I will be giving assignments and doing examples in R.

Grading

Assignments	30%
Midterms	30%
Final Exam	40%

NOTES:

Above grading is subject to change.

Materials

REQUIRED READING:

Required Text:

Introduction to Probability Models (12th Edition) by: S.M. Ross. Publisher: Academic Press

Book is available through the [SFU Bookstore](#)

REQUIRED READING NOTES:

Your personalized Course Material list, including digital and physical textbooks, are available through the SFU Bookstore website by simply entering your Computing ID at: shop.sfu.ca/course-materials/my-personalized-course-materials.

DEPARTMENT UNDERGRADUATE NOTES:

Students with Disabilities:

Students requiring accommodations as a result of disability must contact the Centre for Accessible Learning 778-782-3112 or caladmin@sfu.ca.

Tutor Requests:

Students looking for a tutor should visit <https://www.sfu.ca/stat-actsci/all-students/other-resources/tutoring.html>. We accept no responsibility for the consequences of any actions taken related to tutors.

REGISTRAR NOTES:

ACADEMIC INTEGRITY: YOUR WORK, YOUR SUCCESS

SFU's Academic Integrity website <http://www.sfu.ca/students/academicintegrity.html> is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

Each student is responsible for his or her conduct as it affects the university community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the university. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the university. <http://www.sfu.ca/policies/gazette/student/s10-01.html>