

**STAT 280**

Introduction to Statistical Programming  
**Winter 2026**

**Instructor:** Dr. D. Sen  
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**Class Schedule:** Tuesdays & Thursdays, 16:15-17:30.

**Office Hours:** Thursdays, 14:00-15:30.

**Text:** A first course in statistical programming with R, Third Edition. Braun, W. J., & Murdoch, D. J. (2021). Cambridge University Press.  
The print version of the textbook will be available at: <https://www.bkstr.com/concordiastore/home>  
Note: Students should order textbooks as early as possible, especially for print versions in case books are back ordered or there are any shipping delays.

**Assignments:** There will be 6 assignments. Assignments are compulsory. Students are expected to submit assignments on Moodle. **Late assignments will not be accepted.** Assignments contribute 30% to your final grade. Working regularly on the assignments is essential for success in this course.

**Mid-term Break:** There will be a mid-term break from March 2 to March 8.

**Midterm Tests:** There will be two Class tests. **Class test I** will be held on **Tuesday, February 17, 2026**, and **Class test II** will be held on **Tuesday, March 31, 2026, both in class**. These tests will be closed-book exams.

**NOTE:** Tests missed for any reason, **including illness**, cannot be discarded. Students who are unable to write the Class Test I for a valid reason, their midterm weight will be added to the second test and those who miss the second test (Test II) for a valid reason, will be given a replacement test in class. Such a request will not be granted unless it is made in **writing (by email)**, the reason is **valid** and is supported by **documentation** or other evidence. **Valid reasons** for missing a class test include: conflicts with other exams or religious observances (must be

reported to the instructor in advance); illness ([Short-Term Absence form](#) required); bereavement.

**N.B.: Travel arrangements** are **not** considered a valid reason for missing a test.

**Final Grade:**

- Assignments (30%)
- Mid-term tests (50%), Test I (25%) and Test II (25%)
- Final project (20%)

If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

**PLEASE NOTE:** Students are responsible for finding out the date and time of the final exam once the schedule is posted by the Examination Office. Any conflicts or problems with the scheduling of the final exam must be reported directly to the Examination Office, **not** to your instructor. **It is the Department's policy and the Examination Office's policy that students are to be available until the end of the final exam period. Conflicts due to travel plans will not be accommodated.**

**IMPORTANT:** **PLEASE NOTE THAT THERE IS NO '100% FINAL PROJECT' OPTION IN THIS COURSE.**

Week	Topics to be Covered
1	Getting started Statistical Programming, Basic features in R, Vectors in R
2	Data storage in R, Packages, Data storage in R, Packages, libraries, & repositories
3	Logical vectors and relational operators, Data frames & lists, Data input & output
4	Programming statistical graphics
5	Programming with R: Flow control, managing complexity through functions; <b>Class Test I</b>
6	Programming with R: The replicate function, programming guidelines
7	Programming with R: Debugging and maintenance, efficient programming
8	Simulation: Monte Carlo simulation, Generation of pseudorandom numbers
9	Simulation: Different random variables, multivariate random number generation, Markov chain simulation
10	Simulation: Monte Carlo integration & advanced simulation methods. <b>Class Test II</b>
11	Computational linear algebra: Vectors & matrices in R, Matrix multiplication & inversion
12	Computational linear algebra: Eigen values & Eigen vectors, Matrix décompositions & other opérations & Review

### **Student Services**

You may wish to access the many services available to you as a Concordia student. An overview of these resources can be found here: <https://www.concordia.ca/students/services.html>

### **Academic Integrity and the Academic Code of Conduct**

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: <https://www.concordia.ca/conduct/academic-integrity.html>" [Undergraduate Calendar, Sec 17.10.2]

### **Behaviour**

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the [Code of Rights and Responsibilities](#) which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc. Students engaged in university activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual. Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

### **Intellectual Property**

Content belonging to instructors shared in online courses, including, but not limited to, online lectures, course notes, and video recordings of classes remain the intellectual property of the faculty member. It may not be distributed, published or broadcast, in whole or in part, without the express permission of the faculty member. Students are also forbidden to use their own means of recording any elements of an online class or lecture without express permission of the instructor. Any unauthorized sharing of course content may constitute a breach of the [Academic Code of Conduct](#) and/or the [Code of Rights and Responsibilities](#). As specified in the [Policy on Intellectual Property](#), the University does not claim any ownership of or interest in any student IP. All university members retain copyright over their work.

### **Extraordinary circumstances**

In the event of extraordinary circumstances and pursuant to the [Academic Regulations](#) the University may modify the delivery, content, structure, forum, location and/or evaluation scheme. In the event of such extraordinary circumstances, students will be informed of the change.