

STAT 3553 A: Regression Modelling

Course Information, Fall 2021

Lectures: Tue & Thu 11:35–12:55 **Room:** ONLINE

NOTES: Lectures will be given live using Zoom during lecture times. The meeting ID will be posted at Brightspace. When joining in the Zoom meeting, please make sure the account displays your first and last names, so that I can recognize you when admitting to the meeting.

Instructor: Dr. Sanjoy Sinha

Office: HP 5221

Office Hours: Virtual meeting (by appointments only)

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Marking scheme:

Labs and Assignments: 30% (5% of it for class and lab attendance)

Midterm: 20%

Final Exam: 50%

Textbook:

Title: Applied Regression Analysis, 3rd Edition

Authors: Norman R. Draper and Harry Smith

Publisher: John Wiley & Sons 1998

Prerequisite(s): i) STAT 2559 or STAT 2509; and ii) MATH 1102 or MATH 1107 or MATH 1104; or permission of the School.

Computer Work: You will be using the lab computers in Herzberg Laboratories (HP) on Wednesdays from 13:35–14:25 (Section A1 IN-PERSON HP 3393) and from 14:35–15:25 (Section A2 IN-PERSON HP 4385), and Fridays from 16:35–17:25 (Section AW ONLINE). Your work will involve the use of the statistical package **R**, which can be downloaded from the internet free of charge.

Course Outline: You will be introduced to various methods of regression analysis used for discovering the relationships among variables. Focus will be given on both theory and applications of some widely used classical as well as robust methods for analyzing linear, generalized linear, and nonlinear regression models.

Following topics from the textbook will be covered:

Chapter 1: Fitting a Straight Line by Least Squares, Sections 1.1–1.5

Chapter 2: Checking the Straight Line Fit, Sections 2.1–2.6

Chapter 4: Regression in Matrix Terms: Straight Line Case, Sections 4.1–4.5

Chapter 5: The General Regression Situation, Sections 5.1–5.4

Chapter 8: More on Checking Fitted Models, Sections 8.1–8.4

Chapter 9: Multiple Regression: Special Topics, Sections 9.1–9.5

Chapter 15: Selecting the Best Regression Equation, Sections 15.1–15.4

Chapter 18: Generalized Linear Models, Sections 18.1–18.4

Chapter 24: An Introduction to Nonlinear Regression, Sections 24.1–24.3

Chapter 25: Robust Regression, Sections 25.1–25.5

Midterm Exam: Tuesday, October 19 (in class)

Final Exam: To be scheduled by the university

NOTES:

1. Students wishing to see their final examination papers must make an appointment within two weeks of the examination.
2. The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (if applicable).