SPRING 2024 - STAT 604 G100

ANALYSIS OF EXPERIMENTAL AND OBSERVATIONAL DATA (3)

Class Number: 2841 Delivery Method: In Person

COURSE TIMES + LOCATION:

Jan 8 – Apr 12, 2024: Mon, 12:30–1:20 p.m.
Burnaby

Jan 8 – Apr 12, 2024: Thu, 12:30–2:20 p.m.
Burnaby

EXAM TIMES + LOCATION:

Apr 17, 2024
Wed, 7:00–10:00 p.m.
Burnaby

INSTRUCTOR:

Owen Ward
oward@sfu.ca
1 778 782-7782

PREREQUISITES:

Any course in Statistics. Open only to students in departments other than Statistics and Actuarial Science.

Description

CALENDAR DESCRIPTION:

The standard techniques of multiple regression analysis, analysis of variance, and analysis of covariance, and their role in experimental research. Students with credit for STAT 302 may not take this course for further credit.

COURSE DETAILS:

STAT Workshop Coordinators: Marie Loughin/Sonja Isberg

Outline:

Review: Important concepts from the irst course in statistics will be reviewed.
Simple linear regression: models summarizing the relationship between two quantitative variables. This unit includes the estimation and interpretation of model parameters, assessment of the model's it, inference, and prediction.
Multiple regression: models in which several explanatory variables combine to help explain the variability in a quantitative response variable. This unit includes model assessment, comparison of two regression lines, interactions between explanatory variables, and multicollinearity. Additional topics may include identifying unusual points, variable selection, and/or coding categorical predictors.
Analysis of variance (ANOVA): models that allow the comparison of means of a quantitative response variable across groups de ined by a categorical explanatory variable. This unit includes model assessment, inference methods for comparison of means, and tests for homogeneity of variances.
Other topics may include analysis of covariance, the problem of multiple testing, and/or block designs.

Grading

Assignments	20%

Midterm 1	20%
Midterm 2	20%
Final Exam	40%

NOTES:

You must pass the inal exam to pass the course.

Above grading is subject to change.

Materials

MATERIALS + SUPPLIES:

We will be using the R programming language, which you can access via Jupyter, an online platform, at https://sfu.syzygy.ca/. Alternatively, you can download R Studio and R statistical software free of charge from https://www.rstudio.com/ and https://cran.r-project.org/, respectively.

REQUIRED READING:

STAT2 Modeling with Regression and ANOVA, 2nd ed. by Cannon, Cobb, Hartlaub, et al. Publisher: Macmillan Learning

A hard copy of the book is available through the SFU Bookstore
An e-version of the book is available through vitalsource.com

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.

GRADUATE STUDIES NOTES:

Important dates and deadlines for graduate students are found here: http://www.sfu.ca/dean-gradstudies/current/important_dates/guidelines.html. The deadline to drop a course with a 100% refund is the end of week 2. The deadline to drop with no notation on your transcript is the end of week 3.

REGISTRAR NOTES:

ACADEMIC