SPRING 2016 - STAT 302 D100

ANALYSIS OF EXPERIMENTAL AND OBSERVATIONAL DATA (3)

Class Number: 2924   Delivery Method: In Person

COURSE TIMES + LOCATION:

Tu 2:30 PM – 4:20 PM
SSCC 9001, Burnaby

Th 2:30 PM – 3:20 PM
SSCC 9001, Burnaby

EXAM TIMES + LOCATION:

Apr 17, 2016
3:30 PM – 6:30 PM
SSCC 9001, Burnaby

Apr 17, 2016
3:30 PM – 6:30 PM
SSCC 9002, Burnaby

INSTRUCTOR:

Jack Davis
jackd@sfu.ca

PREREQUISITES:

Any STAT course (except STAT 100), or BUEC 232, or ARCH 376. Statistics major and honors students may not use this course to satisfy the required number of elective units of upper division statistics. However, they may include the course to satisfy the total number of required units of upper division credit.

Description

CALENDAR DESCRIPTION:

The standard techniques of multiple regression analysis, analysis of variance, and analysis of covariance, and their role in experimental research. Students cannot obtain credit for STAT 302 if they already have credit for STAT 305 and/or 350. Quantitative.

COURSE DETAILS:

Lab Instructor: Marie Loughin

Course Outline:

TOPICS

1. Introduction to Regression Analysis
Simple regression, regression and causality, assumptions of linear regression, measuring adequacy of assumptions, estimation of error variance, inferences concerning slope and intercept, inferences concerning the simple regression line, interpretation of estimated regression lines, prediction with regression line.

2. Correlation and its Relationship to Regression
Definition of the correlation coefficient, R, measures of association, the bivariate normal distribution, what R does not measure, estimation and testing with R.

3. Analysis of Variance

One- and two-way analysis of variance, the analysis of variance table and related tests, fixed and random effects, multiple comparison procedures and contrasts.

4. Multiple Regression Analysis

Using more than one independent variable, graphical considerations for this problem, assumptions, collinearity, estimation of the best regression equation, analysis of variance table, overall and partial F tests.

5. The General Linear Model

Multiple regression and analysis of variance as special cases of the general linear model. The general procedure for constructing F-tests by fitting restricted models. Applications to analysis of covariance and comparison of two regression models.

6. Correlations: Multiple, Partial and Multiple-Partial

Correlation matrix, multiple correlation coefficient, the multivariate normal distribution, partial correlation coefficient, F-tests for multiple and partial correlations.

7. Analysis of Residuals

Checking on the assumptions of regression and analysis of variance models, effects of departures from the assumptions, transformations.

Grading

Class Participation	5%
Assignments	12%
Midterms	30%
Final	53%

NOTES:

All grading is subject to change.

Materials

REQUIRED READING:

Required Text:

***Applied Regression Analysis and Other Multivariate Methods* (5th ed) by Kleinbaum, Kupper, Nizam, & Rosenberg. Publisher Cengage Learning.**

DEPARTMENT UNDERGRADUATE NOTES:

Students with Disabilites:
Students requiring accommodations as a result of disability must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Tutor Requests:

Students looking for a Tutor should visit http://www.stat.sfu.ca/teaching/need-a-tutor-.html. We accept no responsibility for the consequences of any actions taken related to tutors.