

DATA SCIENCES AND OPERATIONS

Spring 2024

DSO 529 –

Advanced Regression Analysis
Section(s) 16268/16269

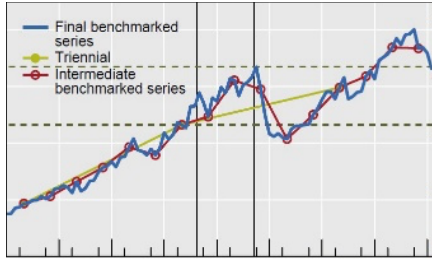
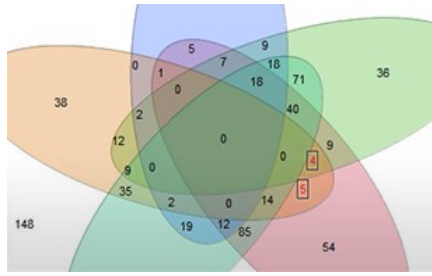
Professor: Dawn Porter

Email: dcporter@marshall.usc.edu

When: M/W, 11:00am–12:20pm

Office: BRI 307C

Units: 3.0



WHY TAKE THIS COURSE?

- Students completing this course will have a detailed understanding of Regression Analysis, Analysis of Variance, and other various Multivariate methods.
- Numerous real examples from finance, marketing, economics, accounting, politics, sports, etc., are used to illustrate applications of the material covered. Emphasis will be placed on the analysis of actual datasets.
- Knowledge of Regression Analysis is a skill in very high demand for working in either the private or public sector. This course develops those skills and opens possibilities for a business analyst/ forecasting management position in business. There is a shortage of well-trained graduates for these positions.
- This course is intended for students working in the fields of Accounting, Economics, Finance, General Business, Human Resources, Marketing, Operations, International Trade, etc., who want a practical introduction to Applied Statistics, Multivariate Analyses, and Econometrics.

COURSE OBJECTIVES

The course goals are for each student to understand regression methods and obtain hands-on experience using, analyzing, and developing multivariate models for business applications. This is a data analysis course that shows how to use the statistical package JMP to help solve both simple and complex real-life data problems.

KEY CONCEPTS

Regression analysis is performed in any organization working with quantifiable data.

- Marketing managers forecast sales for promotional budgets.
- Accountants rely on cost and revenue forecasts in tax planning.
- Finance experts must forecast cash flows to maintain solvency.
- HR departments use forecasts to plan employee recruitment and changes in the workforce.
- Production managers rely on forecasts to determine raw material needs and the desired inventory of finished products.

COURSE DESCRIPTION

This is a data-driven applied statistics course focusing on the analysis of data using Regression and Multivariate models. Topics include Multiple Linear Regression, Residual Analysis and Non-linear Model-building, Heteroscedasticity, Time Series Modeling, Categorical Predictors, Logistic Regression, Analysis of Variance, Clustering, and Panel Data Analysis.