

DATA SCIENCES AND OPERATIONS

SPRING 2025

DSO 545 — *Statistical Computing and Data Visualization*

Section - 16231

Professor
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When
Mon/Wed, 2:00 PM – 3:20 PM

Office **Units**
BRI 401 R 3.0



WHO SHOULD TAKE THIS COURSE?

Students who want to create meaningful Data Visualization using R and do Statistical Computing using R. Students who want to learn best business practices in model reporting, visual presentation and creating dash boards for business.

- To learn **enriching, exploring data and data structures to solve business problems.**
- To learn **producing beautiful and informative graphics in a Systematic way.**
- To learn **R & Tableau and interpret R code in the new copilot world.**
- To select the **appropriate Model and Charts for visualization from Best Business Practices.**
- To learn **statistical computing, Basic modeling and Dash boarding.**

COURSE OBJECTIVES

- Clean & Enrich big data using R
- Distinguish between good and bad graphics
- Produce 1-D, 2-D, 3-D, hyper-variate, time series, and spatial graphics
- Present data analysis and graphics using web dashboards
- Learn from the statistical model outputs created by JMP so as to recreate it in R

KEY CONCEPTS

- R statistical package, R-Studio
- Data cleaning and Data reshaping
- Univariate and Multivariate graphics
- Descriptive Statistics and Hypothesis in R
- Regression in R
- Time series data and Forecasting
- Spatial data & Animated data graphics
- Web dashboards & Reproducible reports

COURSE DESCRIPTION

In this course, you will learn how to make sense of data, and some specifics of modeling for reporting. The course starts with statistical computing, and you will gain experience with R Language. You will learn the practice of data enrichment, basic tabulations, and aggregations in order to be able to produce high quality visualizations. Then, the course proceeds with critical elements of modern data analysis, visualization and presentation. And finally, the course concludes with creating web dashboards connected to R. Tableau will be introduced for dashboard creation. JMP will be used to showcase the Industry Standard Statistical Reporting.