DATA SCIENCES AND OPERATIONS

SPRING 2025

DSO 536 – Business Decision modeling

and Risk Analysis

Section(s) - 16227D

Professor

Cosimo Arenesano

Email

arnesano@marshall.usc.edu

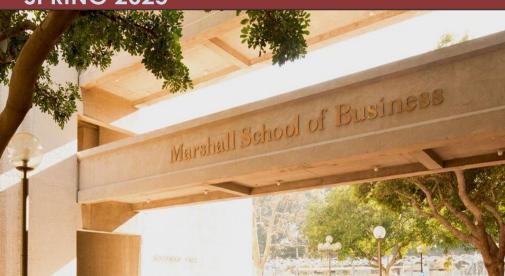
When

Tue/Th, 2:00 pm - 3:20 pm

(Meets in first half of the semester)

Office BRI 401 O Units

1.5



WHO SHOULD TAKE THIS COURSE?

This course is ideal for students interested in business analytics and techniques to manage risk and variability in decision-making processes. Whether you are in finance, marketing, operations, or another business field, if you want to improve your quantitative decision-making skills under uncertainty, this course is for you.

COURSE OBJECTIVES

The primary goal of this course is to empower students with the knowledge to develop robust decision models using Excel that account for uncertainty. This includes the following:

- Risk Analysis: Understanding and analyzing risk to make better-informed decisions.
- Decision-Making Under Uncertainty: Techniques for addressing uncertain outcomes in decision-making.
- Probability Distributions: Using probability to model various uncertain scenarios.
- Statistics and Data Analysis: Applying statistical methods to assess risks and outcomes.
- Random Number Generation: Generating random variables to simulate possible outcomes.
- Quantitative Spreadsheet Skills: Developing and refining spreadsheet modeling techniques.
- @Risk Excel Plug-In: Leveraging the powerful @Risk add-in for Excel to perform risk analysis and simulations.

COURSE DESCRIPTION

In today's rapidly changing business environment, uncertainty is a constant. Decision-makers must account for various unpredictable factors that can affect outcomes in finance, marketing, operations, and beyond. This course teaches students how to model uncertainty using **Monte Carlo simulations** and decision models. By employing simulation and risk analysis tools, students will learn to account for variability and randomness in their decision-making processes. This course focuses on understanding the full range of possible outcomes and evaluating the probability of each scenario to make more informed and risk-aware decisions.

Students will perform simulations in various fields, including finance, marketing, accounting, and operations, to better understand and manage uncertainty in real-world business contexts.

Relation to Other Courses:

This course differs from DSO 547 (Designing Spreadsheet-Based Business Models), as it focuses on uncertainty modeling and risk analysis without assuming prior knowledge from DSO 547.