

# DATA SCIENCES AND OPERATIONS

## SPRING 2025

**DSO 536** – *Business Decision modeling and Risk Analysis*

Section(s) – 16227D

**Professor**  
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**When**  
Tue/Th, 2:00 pm – 3:20 pm  
(Meets in first half of the semester)

Office	Units
BRI 401 O	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.