Data Sciences and Operations

USC Marshall School of Business

DSO 516
Probability and Data Modeling

Professor Amy R. Ward
BRI 401H
amyward@marshall.usc.edu

Who should take the course?

Students who are interested in the application of probability theory to data analysis.

Course objectives

To provide students with a methodology for finding structure in seemingly random data.

Key concepts

- Modeling uncertainty
- Distribution functions
- Laws of large numbers
- Sampling
- Statistics and data analysis
- Spreadsheet skills

- Together, we will build probability models for
  - Demand prediction
  - Quality of service evaluation
  - Capacity planning
  - Portfolio allocation.

Course description

Uncertainty is everywhere. Our objective is to use probability theory to find structure in this uncertainty. We do this by building probability models from data. These models can then be used as input into simulation models – either Monte Carlo models that focus on decision-making under uncertainty (see DSO 536) or Discrete-event models that focus on incorporating variability in process analysis (see DSO534).

In relation to DSO 547 on spreadsheet modeling, this course goes more in-depth on probability theory and its connection with data modeling (and the material is coordinated to ensure minimum overlap without assuming knowledge from DSO 547).

DSO516

DIGITAL RANDOM-NESS