INTRODUCTION TO SPREADSHEETS & MODELS

Don Huesman

Module 3: Addressing uncertainty and probability in models

Wharton UNIVERSITY *of* PENNSYLVANIA ONLINE

Module topics

- Random variables

- Probability distributions in spreadsheets

- Power, exponential and log functions in model formulas

- Models for calculating probability trees and decision trees

- Correlations between variables and spreadsheet statistical functions

- Regression tools in spreadsheets for making predictions

- Multiple regression

Resources

- Software used in this Specialization
  - [Excel](#)
  - [Google sheets](#)
  - Data analysis toolpak for Excel
  - XLMiner Analysis Toolpak for Sheets

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Module 3: Addressing uncertainty and probability in models
Lecture 1 Random variables and probability distributions in spreadsheet models

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Module 3 Lecture 1 Learning objectives

- Implementing random variables using the functions rand() and randbetween()

- Developing forecasts using historical data to project future events

- Understanding probability distributions as they affect models

- Using built-in spreadsheet statistical functions

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Module 3: Addressing uncertainty and probability in models
Lecture 2 Changes in discrete and continuous time

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Module 3 Lecture 2 Learning objectives

- Calculating change in variables in discrete and continuous time

- Redesigning model objective functions to accommodate continuous time.

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Module 4: Addressing uncertainty and probability in models
Lecture 3 Power, exponential and log functions in model formulas

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Module 3 Learning objectives

- Using power, exponential and log functions in model formulas

- Applications of non-linear functions

Module 4 Learning objectives

- Designing models for calculating probability trees

- Implementing decision trees

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Module 3: Addressing uncertainty and probability in models
Lecture 5 Using spreadsheet statistical functions
for correlation and regression

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Module 5 Learning objectives

- Using spreadsheet statistical functions to measure correlations between model variables

- Understanding the meaning of the results of spreadsheet functions for calculating correlations

- Using regression tools in spreadsheets for making predictions

- Improving forecasts with multiple regression

Module 5 Summary

- Random variables

- Probability distributions in spreadsheets

- Power, exponential and log functions in model formulas

- Models for calculating probability trees and decision trees

- Correlations between variables and spreadsheet statistical functions

- Regression tools in spreadsheets for making predictions