

Business Decision Analytics under Under Uncertainty (33:136:400), Spring 2017
Planned Lecture, Reading, and Assignment Schedule

| Class # | Date | Topic | Readings | Homework Distributed | Homework Due |
|---------|--------|-------|--|----------------------|--------------|
| 1 | 18-Jan | Weds | Introduction and procedures, introduction to decision making under uncertainty | | |
| 2 | 23-Jan | Mon | Decision trees and the value of information (EVSI and EVPI), start formal probability theory | | |
| 3 | 25-Jan | Weds | More fundamental probability and random variables, Bayes' formula | 1 | |
| 4 | 30-Jan | Mon | Bayes' formula and decision trees | | |
| 5 | 1-Feb | Weds | More Bayes and decision trees, non-EMV decision-making | 2 | 1 |
| 6 | 6-Feb | Mon | More on non-EMV decision making, start critical fractile analysis | | |
| 7 | 8-Feb | Weds | Critical fractile case study, more critical fractile | 3 | 2 |
| 8 | 13-Feb | Mon | Deterministic dynamic programming: shortest paths | | |
| 9 | 15-Feb | Weds | Review for first midterm exam | | 3 |
| 10 | 20-Feb | Mon | First midterm exam | | |
| 11 | 22-Feb | Weds | More deterministic dynamic programming: knapsack, resource allocation, and inventory | 4 | |
| 12 | 27-Feb | Mon | Introduction to elementary Python: loops, lists, and PyCharm | | |
| 13 | 1-Mar | Weds | Exam results, "numpy" arrays, simple deterministic dynamic programming in Python | 5 | 4 |
| 14 | 6-Mar | Mon | Deterministic dynamic programming with Python | | |
| 15 | 8-Mar | Weds | Introducing stochastic dynamic programming | 6 | 5 |
| -- | 13-Mar | Mon | <i>No class -- spring break</i> | | |
| -- | 15-Mar | Weds | <i>No class -- spring break</i> | | |
| 16 | 20-Mar | Mon | Stochastic programming with net present value, elementary stochastic processes | | |
| 17 | 22-Mar | Weds | More elementary stochastic processes, more stochastic dynamic programming | 7 | 6 |
| 18 | 27-Mar | Mon | Introduction/review for spreadsheet-based simulation | | |
| 19 | 29-Mar | Weds | Dynamic spreadsheet-based simulation (inventory), review for second midterm | | 7 |
| 20 | 3-Apr | Mon | Second midterm exam | | |
| 21 | 5-Apr | Weds | Exam results, more dynamic Monte Carlo simulation (part replacement) | 8 | |
| 22 | 10-Apr | Mon | Monte Carlo simulation of queue-like systems | | |
| 23 | 12-Apr | Weds | Discrete-event simulation with Excel: an M/G/1 queue | 9 | 8 |
| 24 | 17-Apr | Mon | Queuing -- Little's law and the Pollaczek-Khinchin formulas | | |
| 25 | 19-Apr | Weds | Pollaczek-Khinchin examples and introduction to discrete-event simulation | 10 | 9 |
| 26 | 24-Apr | Mon | Learning to use the Arena discrete-event simulator | | |
| 27 | 26-Apr | Weds | More complicated Arena problems | | 10 |
| 28 | 1-May | Mon | Review for final exam | | |
| -- | 9-May | Tues | Final exam for 1:40pm section, 12-3pm | | |
| -- | 10-May | Weds | Final exam for 3:20pm section, 12-3pm | | |