

## Economics 171

### Decisions under Uncertainty

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**Course Goals:** The objective of this course is to provide you training in making careful and informed decisions under uncertainty. While the techniques covered are in common use in corporate decision-making, they can be helpful as well in household decision-making.

**Prerequisite:** Economics 1 A-B, Economics 120 A, and Math 20F, or equivalent

**Problem sets:** Since the course starts with the simplest problems and gradually develops techniques to handle more complex ones, it is important to keep up with the material week by week. For most of us, learning the material requires using it. To facilitate this practice, there will be weekly problem sets, made available each Friday and due in class the following Monday. Each problem set will be graded, and the average of your five highest grades on these problem sets will count for 8% of the final grade.

**Exams:** There will be two in-class midterm exams, each counting for 23% of the final grade. The dates are listed below. The final exam will count for the remaining 46% of the final grade. Grading will be on a curve.

The midterms can raise your numerical grade but cannot lower it: I will use the maximum of your score on the final and your weighted score using in addition either or both midterms to determine the final ranking. There will be no make-up exams for these midterms. If you cannot take either or both midterm exams, then your final grade will be based on those exams that you do take.

**Readings:** The basic readings for the course come from:

D.V. Lindley, *Making Decisions*, 2<sup>nd</sup> edition

**September 27, 30, October 2, 4: Representation of risky choices**

Lindley, Chapters 1-2.

**October 7, 9, 11: Basic rules of probability**

Lindley, Chapter 3

**October 14, 16, 18: Valuing possible outcomes: expected utility**

Lindley, Chapter 4

**October 21: First midterm exam**

**October 23, 25, 28, 30: Risk Aversion**

Lindley, Chapter 5

**November 1, 4, 6: Bayes' Theorem**

Lindley, Chapter 6

**November 8: Second midterm exam**

**November 11:** no class due to Veteran's Day

**November 13, 15, 18: Value of information**

Lindley, Chapter 7

**November 20, 22, 25, 27: Decision trees and applications**

Lindley, Chapter 8

**Dec. 2, 4: Assessment of probabilities and utilities**

Lindley, Chapter 9

**December 6: Overview and review**

Lindley, Chapter 10