

Decision Theory

Niveau : Master, 1st year (M1)

Cursus : Master Economics, Data and Decision Science

Semestre : 2nd semester

Volume horaire : 18 h (CM)

Intervenant : Federica CERON

Contact : federica.ceron@univ-st-etienne.fr

Objectifs du cours :

This is an introductory course in decision theory, focused primarily on its use as a normative tool. We ask what it means to make a “good” decision, and whether it is possible to develop simple algorithms that ensure we only make good decisions. The approach will be axiomatic: we begin by identifying conditions under which preferences admit a utility representation. We then study decision-making under risk and uncertainty, covering key models including Expected Utility Maximization, Subjective Expected Utility, MaxMin Expected Utility, and Bewley’s model of Knightian uncertainty.

Plan de cours :

The course is split in six three-hour long lectures.

- Lectures 1 and 2 comprise a methodological introduction to decision theory and to the utility maximization model.
- Lecture 3 and 4 deal with decision under risk and some of its applications.
- Lecture 5 and 6 introduce decision under uncertainty and some of its applications.

Compétences développées :

Students learn the methodological and technical aspects of the economic modeling of individual and collective behavior.

Modalités d'évaluation :

The final grade will be determined as the average grade in two written examinations, a midterm and a final term at the end of the course. A bonus may be awarded to students who actively participate in class.

Prérequis :

A basic understanding of logical and mathematical reasoning is required. Students should have validated bachelor-level classes in real analysis, calculus, and probability.

Bibliographie / références :

- Notes on the Theory of Choice by David Kreps (Westview Press, 1988)
- Theory of Decision under Uncertainty by Itzhak Gilboa (Cambridge University Press, 2013)



- Revealed Preference Theory by Christopher Chambers and Federico Echenique (Cambridge University Press, 2016)