Behavioral Decision Theory

Teacher: Mohammed Abdellaoui

Duration: 24 hours   **Number of ECTS credits**: 4

Education Level	Period	Language of instruction	Max. Staffing	Teaching Mode
Master	S2	English	25	in-person

Deanship Department: Economics and Decision Sciences   **Domain:** Finance and Economics

Track: Game and Decision Theory

Keywords: Economics, Entrepreneurship, Finance, Marketing, Organization

SYNOPSIS

This course provides an examination of the consequences of deviations from the standard model of rationality in economics, finance, and management. It also introduces modern methods to empirically quantify risk attitudes, ambiguity attitudes, and intertemporal preferences, including situations where both risk and time are involved.

DETAILED DESCRIPTION

Course overview:

Empirical investigations dating back to the early 1950s have revealed multiple violations of standard rationality models, such as expected utility and discounted utility, under uncertainty and over time. These discoveries have led to the development of behavioral decision theories that can capture a broad spectrum of behaviors and have proven useful in modern economic theory.

This course offers a didactic examination of the consequences of deviations from rationality on preference measurement under risk (when probabilities are known), ambiguity (when probabilities are unknown), and over time. Additionally, it introduces recent empirical quantification methods for attitude towards risk, subjective probabilities, and attitude towards ambiguity, using behavioral generalizations of the standard models to gain a better understanding of their preference foundations.

Principal Items:

The course consists of five modules.

1. **Rational decision maker:** Birth of ordinal homo-economicus; ordinal utility; cardinal utility from ordinal choice; Utilitarianism.

2. **Empirical problems for rational decision maker:** Problems for risk and their implications for empirical quantification of attitude towards; Problems for ambiguity and their implications for subjective probability empirical quantification, e.g., overconfidence.

3. **Behavioral decision theories for risk:** Chew's weighted utility; Gul's disappointment aversion; Quiggin's rank-dependent utility; Tversky & Kahneman's cumulative prospect theory; How to elicit risk attitudes without assuming expected utility.

4. **Behavioral decision theories for ambiguity:** Rank-dependent utility and Prospect Theory for ambiguity; How to empirically quantify subjective probabilities from choice without expected utility; How to empirically quantify ambiguity attitude and perception; How to capture overconfidence; How to capture different attitudes in the presence of difference sources of uncertainty.

5. **Behavioral theories for time and risk:** Discounted utility (Decreasing impatience; Hyperbolic discounting), Discounted expected utility, Recursive expected utility and extensions; how to elicit preferences when both risk and time are involved.

Pedagogical Objectives:

At the end of the course, the student will know how to

- Model behavior under risk and ambiguity without committing to the standard models
- Empirically quantify attitudes towards risk and ambiguity
- Build subjective probability distributions
- Account for the attitudinal consequences of different sources of uncertainty

Skills:

- Design experimental protocols to test theories
- How to empirically quantify attitudes and beliefs in the presence of risk, ambiguity and time

TEACHING MATERIALS

Books:

- Wakker, Peter (2010): *Prospect Theory for Risk and Ambiguity*, Cambridge

Digital Resources:

- Slides (a comprehensive collection of slides covering all the topics addressed throughout the course)

TEACHING METHODS

- Presentation
- Exercises

WORK AND EVALUATIONS

Work requested:

Short assignments

Assessment of achievement:

Tool/method of evaluation	Duration	Weight in the final grading
Final Exam	3 hours individual	80%
Assignments	Individual	20%

BIOGRAPHY

Mohammed Abdellaoui is a scholar who studies individual decision-making through both behavioral and formal perspectives, with a particular focus on the perception of uncertainty and time.

His research has been featured in professional journals in economics.

In addition to his scholarly work, Mohammed Abdellaoui has served as the president of the French Association of Experimental Economics (ASFEE) and co-founded Rislab, an international research network that focuses on Risk, Insurance, and Savings at Ghent University in Belgium.

He currently serves as the Editor-in-Chief of Theory and Decision, an International Journal for Multidisciplinary Advances in Decision Science.

WAIVER POLICY

None