UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Decision Making

2627-2-F5109P014

Learning area

APPLIED EXPERIMENTAL PSYCHOLOGICAL SCIENCES

Learning objectives

Knowledge and understanding

- Understand the ideal standards of decision-making both in individual and interactive context
- Understand why people fail to cope with ideal standards
- Heuristics in decision-making and associated biases
- Prospect theory and associated formal modeling of decision making
- Understand how indirect suggestions can influence decisions (nudging)

Applying knowledge and understanding

- Determination of the optimal course of action in different contexts, with examples from clinical decision making and economic decisions
- Analysis of the typical decision course of individuals, with critical analysis of their limits
- Use of software for building and visualizing decision trees

Making judgements

The course presents various theoretical perspectives on each phenomenon discussed and highlights open questions related to cutting-edge knowledge domains. The examination methods encourage and stimulate critical thinking, informed independent judgement, design skills, problem-solving, and synthesis abilities. Through discussions and case studies, the course trains students in independent data evaluation, the construction of causal models, and inductive hypothesis testing. Group work and exercises on the theoretical content covered in lectures

are proposed to foster independent judgement and critical reasoning.

Communication Skills

The course promotes the development of communication skills through in-class discussions of exercises and more theoretical aspects of the course. The exam includes open-ended questions that require the use of appropriate technical language and the ability to clearly and coherently convey the issues addressed.

Learning Skills

The course provides a solid theoretical and practical foundation that enables students to independently pursue further learning in related advanced topics. It encourages autonomous exploration and in-depth study of the topics covered, peer discussion, and active and critical learning.

Contents

The course will explore and discuss the main theories, recent experimental evidence, and applications on human decision making. Students will also learn basic use of a software for building and visualizing decision trees.

Detailed program

- Choice under certainty
- Judgment under risk and uncertainty
- Choice under risk and uncertainty
- Prospect theory and Nudging
- Decision Trees with sensitivity analysis
- Cost-Effectiveness Analysis
- Advice taking
- Human - AI collaborative decision making

Prerequisites

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Teaching methods

The course will be held in person. Teaching methods include lectures, short films, classroom discussions, group work, and exercises. Smartphone apps that allow students to respond to open or closed questions in real-time will be utilized. Once a week, lectures will be held in a computer lab to (i) work on short presentations discussing a common topic chosen by the teacher, and (ii) learn and practice using software for building decision trees. All course materials will be available on the course's e-learning website. Additionally, a group chat will enable interaction with both fellow students and the teacher. The teaching approach will be one-third interactive and two-thirds lecture-based.

Assessment methods

The exam includes a written test to be performed in a computer lab. The test involves three parts: a multiple response test, open questions and an exercise with a decision tree software. The exam aims at ascertaining the effective acquisition of both theoretical knowledge and the ability to connect and apply the different topics of the course. The answers to each question will be evaluated for correctness, argumentative capacity, synthesis, ability to form links among the different areas, and the ability to present the phenomena critically. The activities performed during the course will be part of the overall evaluation.

Textbooks and Reading Materials

Angner, E. (2020). A Course in Behavioral Economics (Third edition.). London: Palgrave.
Baron, J. (2024). Thinking and Deciding (Fifth edition). Cambridge University Press.

Further compulsory material will be made available by the teacher during the course on the elearning website.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | AFFORDABLE AND CLEAN ENERGY | RESPONSIBLE CONSUMPTION AND PRODUCTION