

PhD Programme in Territory Innovation and Sustainability
PhD Programme in Industrial and Civil Engineering

Multi-Criteria Analysis Techniques for Decision-Making

13, 17, 18 December 2024

in presence (room “AULA INGEGNERIA 3”, floor -1 new building) and online

1. Objectives

The objective of the course is to provide participants with the skills needed to apply multi-criteria analysis (MCA) techniques to support the solution of complex decision-making problems in business and political-administrative contexts. Through theoretical insights and practical applications, the course emphasizes the role of MCA as a powerful tool for structuring, evaluating, and prioritizing options in real-world scenarios. Participants will learn how MCA can enhance decision-making processes by integrating diverse criteria, balancing stakeholder perspectives, and providing clear, evidence-based recommendations, ultimately improving the quality and transparency of decisions across various sectors and governance levels.

2. Schedule

The course totals 12 hours (12 lectures of 45 minutes each, 3 days, 4 lectures per day).

Friday 13 December, 10:30 AM - 2:30 PM.

Lectures 1. and 2. Determinants of the decision-making process in organizations

Lectures 3. Multi-Criteria Decision-Making (MCDM)

Lectures 4. Introduction to Analytic Hierarchy Process (AHP) and key concepts

Tuesday 17 December, 10:30 AM - 2:30 PM.

Lectures 5 and 6. AHP methodology

Lecture 7. AHP illustrative examples (class discussion)

Lecture 8. Fuzzy AHP and real case applications.

Wednesday 18 December, 9:30 AM - 1:30 PM.

Lecture 9. Measurement scales.

Lecture 10. Multi-attribute value theory.

Lecture 11. Group decision making.

Lecture 12. Concordance analysis: Electre I.

Final examination. Each participant will present and discuss, in 15 minutes, one MCDM application from scientific/grey literature in one of the following fields: strategic and innovation management; operations;



supply chain management; firm performance; corporate sustainability (environmental, social, economic); transportation planning.

3. ECTS

Participants who will be positively evaluated in the final examination will be awarded 3 ECTS. This will be recorded in the 'diploma supplement', together with the other education activities attended during the PhD programme.

4. Instructors

Paolo Delle Site, Full Professor, Niccolò Cusano University.

Tamara Menichini, Associate Professor, Niccolò Cusano University

5. Language

English.

6. Requisites

Basic calculus.

7. Registration

Please send an email to confirm participation to paolo.dellesite@unicusano.it. In presence participation is strongly recommended. A link for those who will be participating remotely will be provided.