# COURSE DESCRIPTION — ACADEMIC YEAR 2021/2022

<table>
<thead>
<tr>
<th>Course title</th>
<th>Decision Making and Support Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course code</td>
<td>73026</td>
</tr>
<tr>
<td>Scientific sector</td>
<td>INF/01</td>
</tr>
<tr>
<td>Degree</td>
<td>Master in Computational Data Science (LM-18)</td>
</tr>
<tr>
<td>Semester</td>
<td>1</td>
</tr>
<tr>
<td>Year</td>
<td>2</td>
</tr>
<tr>
<td>Credits</td>
<td>6</td>
</tr>
<tr>
<td>Modular</td>
<td>No</td>
</tr>
<tr>
<td>Total lecturing hours</td>
<td>40</td>
</tr>
<tr>
<td>Total lab hours</td>
<td>20</td>
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**Attendance**

Attendance is not compulsory. Non-attending students have to contact the lecturer at the start of the course to agree on the modalities of the independent study.

The exam modalities for non-attending students are indicated below, in the fields “Assessment” and “Evaluation criteria and criteria for awarding marks”.

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**Prerequisites**

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**Course page**

https://ole.unibz.it/

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**Specific educational objectives**

The course belongs to the type "caratterizzanti – discipline informatiche" in the curricula “Data Analytics” and “Data Management”.

The course gives a general overview of topics in decision theory. After this course the students will have acquired general and pluri-disciplinary knowledge about decision. The students will be more prepared when facing situations of decision making. They will also have a grasp on the technical aspects of decision making, and will be capable to apply them to provide decision support.

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**Lecturer**

Nicolas Troquard

**Contact**

POS 3.02, nicolas.troquard@unibz.it

**Scientific sector of lecturer**

ING-INF/05

**Teaching language**

English

**Office hours**

Arrange beforehand by email.

**Lecturing Assistant (if any)**

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**Contact LA**

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**Office hours LA**

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**List of topics**

- Modelling decisions
- Modelling uncertainty
- Modelling preferences
- Modelling negotiations
- Decision support tools
- Psychology of decision making
- Persuasion
### Teaching format

Frontal lectures, practice and exercise classes.

### Learning outcomes

**Knowledge and understanding:**
- D1.5 - Knowledge of principles and models for the representation, management and processing of complex and heterogeneous data

**Applying knowledge and understanding:**
- D2.2 - Ability to address and solve a problem using scientific methods
- D2.11 - Ability to develop intelligent software systems for decision support

**Making judgments**
- D3.2 - Ability to autonomously select the documentation (in the form of books, web, magazines, etc.) needed to keep up to date in a given sector
- D3.3 - Ability to identify reasonable work goals and estimate the resources needed to achieve these goals

**Communication skills**
- D4.1 - Ability to use English at an advanced level with particular reference to disciplinary terminology

**Learning skills**
- D5.2 - Ability to autonomously keep oneself up to date with the developments of the most important areas of data science

### Assessment

- **Written exam with verification questions.**
- Exercise, lab work, or project possibly done in groups, and requiring individual reports and/or presentations.
- The assessment modalities for non-attending students is identical.

### Assessment language

English

### Assessment Typology

Monocratic

### Evaluation criteria and criteria for awarding marks

- **Assessment 1:** 40% of the final grade will be awarded for the project, exercise, and lab work.
- **Assessment 2:** 60% of the final grade will be awarded for the final exam.
- Admission is awarded when the final grade is 60% or above.

  Relevant for assessment 1: ability to summarize, evaluate, and establish relationships between topics; ability to work in a team; creativity; skills in critical thinking; correctness and clarity of answers.

  Relevant for assessment 2: correctness and clarity of answers.

  The assessment modalities for non-attending students is identical.

### Required readings

There is no single textbook that covers the entire course. The course material is collected from various textbooks and research papers.
<table>
<thead>
<tr>
<th>Supplementary readings</th>
<th>Various tools and programming languages may be used during the course.</th>
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</thead>
<tbody>
<tr>
<td>Software used</td>
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</table>

- Daniel Kahneman - *Thinking, Fast and Slow*
- Martin Peterson - *An Introduction to Decision Theory*
- Yoav Shoham, Kevin Leyton-Brown - *Multiagent Systems: Algorithmic, Game-Theoretic, and Logical Foundations*
- Max H. Bazerman, Don A. Moore - *Judgment in Managerial Decision Making*
- Efraim Turban, Jay E. Aronson - *Decision Support Systems and Intelligent Systems*

Subject Librarian: David Gebhardi, David.Gebhardi@unibz.it