# COURSE DESCRIPTION – ACADEMIC YEAR 2020/2021

<table>
<thead>
<tr>
<th><strong>Course title</strong></th>
<th>Introduction to Linear Algebra and Discrete Mathematics</th>
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</thead>
<tbody>
<tr>
<td><strong>Course code</strong></td>
<td>76435</td>
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<tr>
<td><strong>Scientific sector</strong></td>
<td>MAT/02</td>
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<tr>
<td><strong>Degree</strong></td>
<td>Bachelor in Informatics and Management of Digital Business (L-31)</td>
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<tr>
<td><strong>Semester</strong></td>
<td>1</td>
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<tr>
<td><strong>Year</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>6</td>
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<tr>
<td><strong>Modular</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Total lecturing hours</strong></td>
<td>40</td>
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<tr>
<td><strong>Total lab hours</strong></td>
<td>20</td>
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**Attendance**

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

**Prerequisites**

There are no prerequisites.

**Course page**

https://ole.unibz.it/

**Specific educational objectives**

- Type of course: “di base” for L-31
- Scientific area: “Formazione matematica-fisica” for L-31

The aim of this course is to present a rather comprehensive treatment of linear algebra and discrete mathematics, giving a general overview of the field, giving a general overview of the field. It covers vector, matrix and numbers theory, sets, functions and graphs to some degree of mathematical logic and rigour, emphasizing topics that are in support of computer science. The course also provides practice in using the tools of mathematics to solve problems and to make judgements autonomously.

**Lecturer**

Bruno Carpentieri

**Contact**

Office POS 3.10, bruno.carpentieri@unibz.it, +39 0471 016027

**Scientific sector of lecturer**

MAT/08

**Teaching language**

Italian

**Office hours**

Monday 16:00-18:00, Faculty of computer science, Piazza Domenicani 3, Office 3.10 (it is recommended to make an appointment 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**

- Background on complex numbers, trigonometry and polynomials
- Vectors and matrices
- Linear systems
- Induction principle and recursion
- Sets, functions and counting
- Relations and graphs

**Teaching format**

This course will be delivered through a combination of formal lectures and exercises.
## Learning outcomes

**Knowledge and understanding:**
- D1.1 - Possess basic knowledge of mathematical analysis, algebra, numerical calculation and optimisation methods which support computer science and advanced economics.

**Applying knowledge and understanding:**
- D2.1 - Ability to use mathematics and statistical data analysis tools to solve computational problems.

**Learning skills**
- D5.1 - Learning ability to undertake further studies with a high degree of autonomy.

## Assessment

Written exam, consisting of a set of verification questions, transfer of knowledge questions and exercises. The aim of the assessment is to check to which degree students have mastered the following learning outcomes:
1) knowledge and understanding,
2) applying knowledge and understanding,
3) making judgment.

The same rules apply to both attending and non-attending students.

## Assessment language

Italian

## Assessment Typology

Monocratic

## Evaluation criteria and criteria for awarding marks

Final Written Exam, 100% covering the full program.

Written exam questions will be evaluated in terms of correctness, clarity, quality of argumentation, problem solving ability.

The same rules apply to both attending and non-attending students.

## Required readings


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

## Supplementary readings


## Software used

No software is needed