SYLLABUS
COURSE DESCRIPTION

COURSE TITLE	**Linear Algebra**
COURSE CODE	76238
SCIENTIFIC SECTOR	MAT/02
DEGREE	Bachelor in Computer Science
SEMESTER	1st
YEAR	1st
CREDITS	6

TOTAL LECTURING HOURS	40
TOTAL LAB HOURS	20
ATTENDANCE	Attendance is not compulsory, but 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 its applications, giving a general overview of the field. It covers vector and matrix theory to some degree of mathematical logic and rigor, emphasizing topics useful in other disciplines such as solving linear equations and computing determinants and eigenvalues of matrices. The course also provides practice in using linear algebra to think about problems in computer science, and in actually using linear algebra computations to address these problems.

LECTURER	Bruno Carpentieri
SCIENTIFIC SECTOR OF THE LECTURER	MAT/08
TEACHING LANGUAGE	**Italian**

OFFICE HOURS	Faculty of Computer Science, Piazza Domenicani 3, Office 3.10. During the lecture time span, Monday 16:00-18:00.
TEACHING ASSISTANT	Bruno Carpentieri Simone Ugolini
OFFICE HOURS	Tuesday 15:00-15:45, Faculty of Computer Science, Piazza Domenicani 3, Office 1.04, Simone.Ugolini@unibz.it
LIST OF TOPICS COVERED	• Background on complex numbers, trigonometry and polynominals • Vectors and matrices • Linear Systems • Vector spaces • Linear operators • Spectral analysis
TEACHING FORMAT	This course will be delivered through a combination of frontal lectures and exercises

LEARNING OUTCOMES	**Knowledge and understanding** • Have a solid knowledge of linear algebra that are in support of computer science. **Applying knowledge and understanding** • Be able to use the tools of mathematics to solve problems. **Making judgments** • Be able to work autonomously according to the own level of knowledge and understanding **Communication skills** • Be able to use one of the three languages English, Italian and German, and be able to use technical terms and communication appropriately. **Ability to learn** • Have developed learning capabilities to pursue further studies with a high degree of autonomy.

ASSESSMENT	The written exam will consist 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**

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	• Gilbert Strang: Introduction to Linear Algebra, Fourth Edition • Gilbert Strang: Algebra lineare (Italian) • Carl D. Mayer: Matrix Analysis and Applied Linear Algebra
SUPPLEMENTARY READINGS	• Philip N. Klein: Coding the Matrix Linear Algebra through Applications to Computer Science, First Edition.
SOFTWARE USED	No software is needed