UNIVERSITÀ DI PAVIA

Anno Accademico 2020/2021

ELEMENTARY MATHEMATICS

Enrollment year	2020/2021
Academic year	2020/2021
Regulations	DM270
Academic discipline	MAT/04 (COMPLEMENTARY MATHEMATICS)
Department	DEPARTMENT OF PHYSICS
Course	
Curriculum	Didattica e storia della fisica
Year of study	1°
Period	1st semester (05/10/2020 - 20/01/2021)
ECTS	6
Lesson hours	48 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	MARACCI MIRKO (titolare) - 6 ECTS
Prerequisites	Mathematical knowledge and compentencies developed in the upper secondary schools and in the "laurea triennale" in mathematics, with specific regard to: arithmetic, basic concepts of plane and space geometry, real numbers, real functions of one real variables, elementary probibility.
Learning outcomes	The course aims at introducing students to themes from diverse fields of mathematics (arithmetics, geometry, analysis and probability), chosen for their possible connections with the content tauhgt in secondary schools. The main objective is to provide tools for reflecting upon these themes in a critical way (even) from a didactical perspective.
Course contents	Numeration systems. Geometrical transformations of the Euclidean plane and space from a synthetic point of view. (Depending on the time remaining and the interests of the students:

	Introduction to iperreal numbers and non-standard analysis. Different approaches to probability: classical, frequentist and subjectivist interpretation of probability.)
Teaching methods	Interactive lessons, which will introduce the contents of the course and during which theoretical and meta-theoretical issuses will be discussed, and problem-solving sessions.
Reccomended or required readings	Didactical material made available by th teacher Capelo, A.-C.; Ferrari, M. e Padovan, G. I sistemi di numerazione. CNR Quaderno n.7, Pavia, 1990. Dedò, M. Trasformazioni geometriche. Decibel, Zanichelli, Bologna, 1996. (possibly: Kiesler, H.J. Foundations of infinitesimal calculus, 2007.)
Assessment methods	The achievement of the learning objectives will be ascertained through a written and an oral examination. The written examination will include mathematical tasks and open questions. The examinations will aim at assessing the level of knowledge of the contents of the course and the ability to autonomously re-elaborate these contents.
Further information	
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile