



ELEMENTARY MATHEMATICS FROM AN ADVANCED STANDPOINT

Enrollment year	2020/2021
Academic year	2021/2022
Regulations	DM270
Academic discipline	MAT/04 (COMPLEMENTARY MATHEMATICS)
Department	DEPARTMENT OF MATHEMATICS "FELICE CASORATI"
Course	MATHEMATICS
Curriculum	PERCORSO COMUNE
Year of study	2°
Period	1st semester (29/09/2021 - 14/01/2022)
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 competencies developed in the "laurea triennale" in mathematics.
Learning outcomes	The course aims at analysing and comparing different axiomatic approaches to elementary geometry with a specific focus on the classical Euclidean presentation and the modern Hilbert's one.
Course contents	Euclidean plane and solid geometry. Common notions, postulates, definitions, propositions. The fifth postulate and the theory of parallel lines. Classical problems of compass and ruler constructions. Geometry as formal system: Hilbert's axioms. The problems of continuity and completeness of line. Issues of consistency, independence and categoricity. Choquet's and Prodi's axioms.
Teaching methods	Interactive lessons to introduce the contents of the course and discuss

	theoretical and meta-theoretical issues, and problem-solving sessions.
Reccomended or required readings	* "Gli Elementi di Euclide", edited by A. Frajese and L. Maccioni, Torino, Utet, 1970 * "The thirteen books of Euclid's Elements", edited by T.S.Heath, Dover Publications * Hilbert, D., "Fondamenti della geometria", Feltrinelli, 1968 * Choquet G., "L'insegnamento della geometria", Feltrinelli, 1967. * Materiale didattico fornito dal docente.
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