



UNIVERSITÀ DI PAVIA

Anno Accademico 2020/2021

TOPICS IN GEOMETRY	
Enrollment year	2018/2019
Academic year	2020/2021
Regulations	DM270
Academic discipline	MAT/03 (GEOMETRY)
Department	DEPARTMENT OF MATHEMATICS "FELICE CASORATI"
Course	MATHEMATICS
Curriculum	PERCORSO COMUNE
Year of study	3°
Period	1st semester (01/10/2020 - 20/01/2021)
ECTS	6
Lesson hours	56 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	PERNAZZA LUDOVICO (titolare) - 6 ECTS
Prerequisites	The basic notions of group theory, linear algebra and general topology.
Learning outcomes	An introduction to homotopy and homology
Course contents	<p>The fundamental group. Free groups. The theorems of Van Kampen. Covering spaces.</p> <p>Basic notions of homological algebra. Singular homology and its homotopic properties, relative homology, axiomatic homology theory. Simplicial complexes, CW-complexes. Triangulations, Euler-Poincaré characteristic, orientation, the classification of surfaces. Jordan curve theorem, invariance of domain.</p>
Teaching methods	Lectures and problem sessions
Reccomended or required readings	A. Hatcher: "Algebraic Topology", Cambridge University Press (freely available online)

M. Greenberg, J. Harper: "Algebraic Topology".
W. Massey: "A Basic Course in Algebraic Topology", Springer-Verlag.
E. Spanier: "Algebraic Topology".

Assessment methods

Written and oral exam.

Further information

**Sustainable development
goals - Agenda 2030**

[\\$bl legenda sviluppo sostenibile](#)