



General information		Academic year 2022-2023
Academic subject	Differential Geometry	
Degree programme	Mathematics	
Programme year	Third	
Term	Second semester 2022 – 2023	
European Credit Transfer and Accumulation System credits (ECTS)	Es.: 8	
Language	Italian	
Attendance	Not compulsory	

Lecturer	
Name and surname	Mauricio Barros Correa Junior
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Department and office	Department of Mathematics, room 6, second floor
Virtual meeting room	Microsoft Teams codice 4fihc19
Web page	https://www.dm.uniba.it/members/correa
Office hours	Wednesday 15:30-17:30 and by appointment via email

Syllabus	
Learning objectives	Knowledge of the basic notions of Differential Geometry of surfaces
Course prerequisites	Algebra e Algebra lineare di base. Calcolo differenziale
Course contents	Christoffel symbols; Intrinsic formula for Gauss curvature; Gauss' Theorema Egregium; Geodesic equation; Geodesic curvature; Exponential map and Gauss' lemma; Minimizing property of geodesics; Differential forms; Stokes Theorem; Index of a vector field; Gauss-Bonnet Theorem; Poincaré-Hopf Theorem; Conformal applications; Isothermal coordinates and Riemann surfaces.
Reference books	Manfredo do Carmo, <i>Differential geometry of curves and surfaces</i> . Prentice-Hall,1976. Manfredo do Carmo, <i>Differential Forms and Applications</i> , Springer-Verlag, 1994. M. Spivak, <i>A Comprehensive Introduction to Differential Geometry</i> , volumes 1 and 2. Publish or Perish, 1979.
Additional course materials	Bott, R., and Tu, L., <i>Differential Forms in Algebraic Topology</i> . Springer-Verlag, 1982. Kobayashi, S. and Nomizu, K., <i>Foundations of Differential Geometry</i> vols. 1 and 2, John Wiley & Sons 1963. L. Bers, <i>Riemann Surfaces</i> , New York University, Institute of Mathematical Sciences, New York, 1957–1958, pp. 15–35

Work schedule



	Total	Lectures	Hands-on learning (recitations/laboratories /seminars/other)	Self-study
Hours	60	52	8	115
ECTS credits	7	6,5	0,5	

Teaching methods	
	Lectures and exercise sections

Expected learning outcomes	
Knowledge and understanding	Differential calculus of curves and surfaces
Improve ability in differential calculus of curves and surfaces using many examples	Improve ability in differential calculus of curves and surfaces using many examples.
Making judgements	Ability to prove the properties regarding the program of the course
Communication skills	Students should learn to read books regarding the program of the course
Learning skills	Acquiring a study method by fundamental examples

Assessment and feedback	
Assessment methods	Oral exam
Evaluation criteria	
Grading policy	

Additional information	