



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare
ACADEMIC YEAR	2021/2022
BACHELOR'S DEGREE (BSC)	GEOLOGY
SUBJECT	PHYSICAL GEOGRAPHY
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50191-Ambito geomorfologico-geologico applicativo
CODE	11719
SCIENTIFIC SECTOR(S)	GEO/04
HEAD PROFESSOR(S)	ROTIGLIANO EDOARDO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	94
COURSE ACTIVITY (Hrs)	56
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<b>ROTIGLIANO EDOARDO</b> Wednesday 15:00 17:00 Studio del docente: Via Archirafi, 22 II piano.N.B. ulteriori o differenti incontri possono essere concordati con il docente: edoardo.rotigliano@unipa.it Friday 15:00 17:00 Per gli studenti del CdS in Biodiversità e Innovazione Tecnologica, presso le strutture del polo didattico di Trapani O della struttura "Principe di Napoli".I ricevimenti, su richiesta, possono essere svolti anche su piattaforma teams.Ulteriori o differenti incontri possono essere concordati con il docente: edoardo.rotigliano@unipa.it.

**DOCENTE:** Prof. EDOARDO ROTIGLIANO

<b>PREREQUISITES</b>	Basic knowledge (High school level) of Mathematics, Chemistry and Physics. Introductory elements of Earth Sciences.
<b>LEARNING OUTCOMES</b>	<p><b>KNOWLEDGE AND UNDERSTANDING</b> Knowledge of the main topics of Physical Geography, with specific focus on the structure and dynamics of the atmosphere-hydrosphere-lithosphere complex system, as well as of the main morphodynamic processes which are responsible of earth surface modelling. Understanding of the main physical geographical characteristics of the Sicilian landscape. Knowledge of the main tools for representing and projecting the earth surface on maps.</p> <p><b>APPLYING KNOWLEDGE AND UNDERSTANDING</b> Ability to link the framework of the processes acting in an area to its geological and morpho-climatic setting (and vice versa). Ability to infer the geological and morpho-climatic conditions of an area starting from the cartographic representation of its landscape. Ability of performing the main operation on maps: orientation, altimetric profiles, catchment and drainage network extraction. Ability of using topographic maps on the field.</p> <p><b>MAKING JUDGEMENTS</b> For each of the studied morphodynamic processes, being able to recognize the role of the different geographic controlling factors. Being able, through the personal interpretation to interpret the landscape in terms of interaction between structure, climate and processes.</p> <p><b>COMMUNICATION SKILLS</b> Being capable to adopt a rigorous and consistent physical geographical language, using appropriate terms for describing the earth surface and its phenomena. Being capable to correctly describe the physical geographical characteristics of an area, indicating the different conditioning factors. Being able to illustrate the morphodynamic processes acting in an area, starting from topographic maps or theoretical morpho-climatic models.</p> <p><b>LEARNING SKILLS</b> Being able to autonomously deepen the topics discussed in the lectures and laboratory sessions, exploiting the required and supplementary books or web resources, recognizing the basic concepts of Physics and Chemistry which underlie Physical Geography.</p>
<b>ASSESSMENT METHODS</b>	<p><b>THEORETICAL CONTENTS (4 ECTS):</b> Pre-selective written test + oral test. The written test consists of a multiple choice test (30 questions, each including three possible answers: score 1, exact; score -0.5, wrong), regarding the basic contents of the course. The test aims at verifying the successful acquisition of the basic information given during the course. The student which passes the written test (minimum score 18/30) accesses to the oral test. The written test will be also submitted to students as course test during the semester, once the lectures of the theoretical contents will be completed. Students who pass the course test can directly access the oral test with its obtained score. The evaluation of the oral test will be in the 0-30 range, grading the score according to the level of fitting to the following criteria: comprehension, ability in communicating, originally re-elaborating, conceptualising and through topics transversally analysing/synthesizing. The oral test will be based on three queries. Passing the exam requires at least a score of 18/30 score for both the two tests (written and oral). The final score will be obtained by averaging the scores of the written (weight = 25%) and oral (weight = 75%) tests.</p> <p><b>APPLICATIONS OF CARTOGRAPHY (2 ECTS):</b> Checking and approval in the laboratory of cartographic outputs (map coordinate and projections, elevation profiles, drainage network and water divides, landscape reading).</p> <p>The approval of the cartographic and GIS outputs is mandatory for accessing the final exam.</p>
<b>EDUCATIONAL OBJECTIVES</b>	<p>Students will be asked to acquire the full knowledge of factors and phenomena which are responsible for the climatic conditions, geologic setting and modelling processes on the Earth surface. In particular, at the end of the course, the students expected to have a clear idea of the mechanisms governing the dynamic of atmosphere, hydrosphere and lithosphere. Besides, the mechanism through which a large fan of morphodynamic processes act on the Earth surface will be considered as a mandatory knowledge set. In the framework of laboratory activity, the student must acquire the ability of managing the main cartographic operations and recognizing on maps landscapes, geologic structures and morphodynamic styles.</p>
<b>TEACHING METHODS</b>	

	<p>Theoretical contents (5 ECTS): lectures; Applications of cartography (1 ECTS): laboratory.</p> <p>The field excursions of the 21976 - LABORATORIO ROCCE, CARTOGRAFIA E TERRENO module are associated to the module of Physical Geography, while laboratory of "Geoinformatic application I" is devoted to climatic data analysis.</p>
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>Testo di riferimento (Reference book)</p> <p>STRAHLER A. 2015 - Fondamenti di geografia fisica - ZANICHELLI (Edizione italiana a cura di Elvio Lavagna e Guido Lucarno)</p> <p>Per ciascun argomento, in aula, il docente indicherà le fonti di studio più appropriate, anche facendo riferimento a risorse su web ad accesso libero e/o a dispense.</p> <p>For each topic, in class, the lecturer will suggest the specific chapter or section of the book, also taking into consideration free on-line resources or lecture notes.</p> <p>I seguenti testi possono essere considerati alternativi a quello di riferimento, con piccole integrazioni suggerite dal docente.</p> <p>Any of the following books can be taken as substitutive of the reference text, just adding few integrations which will be indicated by the lecturer.</p> <p>McNIGHT T.L. &amp; HESS D. (2005). Geografia Fisica - Ed. Piccin Nuova Libreria S.p.A., Padova, pp. 668.</p> <p>STRAHLER A. (1984). Geografia Fisica – Ed. Piccin Nuova Libreria S.p.A., Padova, pp. 664.</p> <p>STRAHLER A. &amp; STRAHLER A. (2003). Introducing Physical Geography - John Wiley &amp; Sons, Inc., pp. 684</p> <p>Tutti i testi sopra menzionati sono disponibili, oltre che per l'acquisto, anche per la consultazione presso la biblioteca del Dipartimento DISTEM.</p> <p>The above listed books are available for purchasing as well as for consultation in the library of the DISTEM Department.</p>

## SYLLABUS

Hrs	Frontal teaching
1	the Earth shape
2	Rotation: from cinematic to dynamic and climatic consequences
3	Revolution: cinematic and climatic consequences
1	The millennial motions and the palaeoclimatic consequences
1	Moon and tides
1	Atmosphere structure, composition and dynamics
2	Solare radiation and global thermic balance
2	Atmospheric pressure, baric fields and winds
2	Global winds pattern and local winds
2	Atmospheric moisture and precipitation
2	Air masses, fronts and cyclonic/anticyclonic systems
1	The hydrologic cycle. Permeability of rocks, runoff and groundwater
2	Climate factors and classification criteria. The Koeppen classification
1	Biosphere and main Biomes
1	The inner of the Earth. Minerals and rocks of the crust
2	Plate tectonics and dynamic of the lithosphere - Volcanoes and earthquakes
1	Climate, structure, processes and landforms: Dynamic and climatic geomorphology
1	Weathering processes and soils
1	Gravitative processes - Hillslope water erosion processes
3	The fluvial processes
1	The evolution of fluvial valleys and drainage network
2	Aeolian morphodynamic and related landforms
1	Coastal processes
2	Glacial morphodynamic: process and landforms
1	The periglacial system: processes and landforms
1	Slope evolution and erosion cycle - The Murphy classification of the earth surface.
Hrs	Workshops
2	Cartographic projection and reference systems - Reduction scales
2	Italian cartographic production - The 1:25.000 I.G.M.I. maps

Hrs	Workshops
2	Spheric and cartesian coordinate systems
2	The altitude representation and landscape reading
4	Topographic profiles
2	Drainage and divide lines: the water catchment
2	The drainage network: hierarchy and hydro-morphometric classification