



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare		
ACADEMIC YEAR	2020/2021		
BACHELOR'S DEGREE (BSC)	NATURAL AND ENVIRONMENTAL SCIENCE		
SUBJECT	GEOMORPHOLOGY		
TYPE OF EDUCATIONAL ACTIVITY	A		
AMBIT	50176-Discipline naturalistiche		
CODE	03690		
SCIENTIFIC SECTOR(S)	GEO/04		
HEAD PROFESSOR(S)	CONOSCENTI CHRISTIAN	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)			
CREDITS	6		
INDIVIDUAL STUDY (Hrs)	94		
COURSE ACTIVITY (Hrs)	56		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	3		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<b>CONOSCENTI CHRISTIAN</b> Tuesday 10:30 12:30 Studio del docente. Riunione su piattaforma Teams. Thursday 10:30 12:30 Studio del docente. Riunione su piattaforma Teams.		

DOCENTE: Prof. CHRISTIAN CONOSCENTI

<b>PREREQUISITES</b>	Basic knowledge of physical geography and geomorphology.
<b>LEARNING OUTCOMES</b>	<p><b>KNOWLEDGE AND UNDERSTANDING</b> Knowledge of the exogenous processes and their interaction with endogenous ones; knowledge of the main processes responsible for landscape modelling.</p> <p><b>APPLYING KNOWLEDGE AND UNDERSTANDING</b> Ability to perform analyses of the processes which model the earth surface.</p> <p><b>MAKING JUDGMENTS</b> Ability to understand the evolution of the landforms and their environmental and social impact.</p> <p><b>COMMUNICATION SKILLS</b> Ability to communicate knowledge developed in the field of slope processes and to explain the results achieved in geomorphology studies to both specialist and non-specialist audiences.</p> <p><b>LEARNING SKILLS</b> Ability to update and deepen the topics discussed in the lectures by means of scientific works, books and web resources.</p>
<b>ASSESSMENT METHODS</b>	<p><b>THEORETICAL CONTENTS (5 ECTS):</b> written test, eventually integrated by an oral exam. The written test will consist of a task in which three open-ended questions will be proposed, each of which will compete for 1/3 of the evaluation. The assessment of the written test will be in the range 0-30, grading the mark according to the level of satisfaction of the following criteria: level of understanding, ability to present, appropriate technical-scientific language, ability to re-elaborate and synthesize concepts, ability to make connections between the various parts of the program. Students passing the written test, with a minimum mark of 18/30, will have the possibility to take an integrative oral test. The oral test will be based on two queries. The same ability which are evaluated in the written test will be considered. The final score will be given by averaging the written and oral scores.</p> <p><b>LABORATORY (1 ECTS):</b> Short (maximum 5 pages) written report that summarizes the results obtained through quantitative geomorphology analyses carried out in the laboratory. The delivery of the report is a necessary condition to access the final exam. The assessment is expressed in thirtieths. Sufficiency will be reached when the student shows knowledge and understanding of the subjects at least in general terms and demonstrates to be able to apply the achieved knowledge. The student should also have communication skills allowing to transfer his knowledge to the examiner. Below this threshold, the examination will be insufficient. The better the knowledge, application and presentation skills of the student, the more the assessment will be positive.</p>
<b>EDUCATIONAL OBJECTIVES</b>	<p>The main goal of the course is to provide the students with the scientific and methodological knowledge required to analyze the landforms generated by the slope processes. In particular, the course will focus on the landforms modeled under different climatic conditions, taking into account the physical variables that mainly control the different geomorphic processes. Furthermore, the course aims to provide students the tools that allow to analyze and assess the morphometric characteristics of watersheds and drainage networks. Furthermore, the student will learn to apply geomorphic analyses which allow the assessment of water erosion.</p>
<b>TEACHING METHODS</b>	<p>Lectures: 5 ECTS credits (40 hours) Laboratory: 1 ECTS credits (16 hours)</p>
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>PANIZZA M. - Geomorfologia. Ed. Pitagora, Bologna. CICCACCI S. - Le forme del rilievo – Atlante illustrato di geomorfologia. Mondadori Università, Roma. STRAHLER A.N. - Geografia fisica. Piccin, Padova.</p>

## SYLLABUS

Hrs	Frontal teaching
1	Overview and structure of the course.
1	Landforms and geomorphologic processes. Exogenic and endogenic processes and landforms. Modelling factors. Erosion, transportation and sedimentation.
2	Weathering processes: mechanical and chemical agents.
1	Slope modelling processes: degradation and aggradation. Processes caused by gravity. Solifluction and creep.
6	Landslide processes. Overview, classification and landslide parts. Causes and controlling factors.
6	Water erosion processes and landforms. Factors controlling water erosion.
4	Fluvial processes: erosion, transportation and deposition. Fluvial depositional landforms: floodplains and alluvial fans. Fluvial channels: bedrock and alluvial channels. Meanders. Types of valleys. River terraces.
3	Coastal processes: action of the waves; erosion, transportation and deposition. Beaches and cliffs.

## SYLLABUS

Hrs	Frontal teaching
3	Karst processes and soluble rocks. Corrosion of limestones. Surficial karst landforms. Dolines, poljes and karst valleys. Karren.
1	Morphoclimatics zones and landforms. Effects of Quaternary climatic changes.
3	Glacial and periglacial morphoclimatic systems. Glacial and periglacial processes and landforms.
3	Arid morphoclimatic system. Aeolic process. Landforms of the desert.
3	Structural geomorphology. Structural landforms. Morpho-neotectonic and morpho-selection. Drainage network and geologic structure.
3	Quantitative geomorphology applied to the analysis of watersheds. Morphometry of watersheds. Assessment of erosion from watersheds.
Hrs	Workshops
4	Digitization of the hydrographic network and delimitation of a study catchment on geo-referenced topographic maps.
5	Hierarchical order of the hydrographic network and calculation of ratios and bifurcation indexes.
5	Calculation of morphometric parameters of the river basin and hypsometric analysis.
2	Assessment of the turbidity unit index in the study catchment.