



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare
ACADEMIC YEAR	2022/2023
MASTER'S DEGREE (MSC)	GEORISK AND GEORESOURCES
SUBJECT	SEDIMENTARY PETROGRAPHY
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	21015-Attività formative affini o integrative
CODE	05676
SCIENTIFIC SECTOR(S)	GEO/07
HEAD PROFESSOR(S)	SCOPELLITI GIOVANNA Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	94
COURSE ACTIVITY (Hrs)	56
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<b>SCOPELLITI GIOVANNA</b> Tuesday 15:00 16:00 Via Archirafi 36, II piano, stanza II-4

**DOCENTE:** Prof.ssa GIOVANNA SCOPELLITI

<b>PREREQUISITES</b>	It is required familiarity with the use of polarized light microscope and knowledge of the optic features of the main minerals.
<b>LEARNING OUTCOMES</b>	Acquisition of the needed instruments to identify and classify a sedimentary rock. Ability to use a specific petrographic language. Ability to reconstruct the genetic environment of a sedimentary rock starting from its macro and microscopic features. Ability to evaluate the results obtained from a petrographic study in terms of implications related to the mineral constituents of the rock and its history. Ability to explain the features of a rock and its petrogenetic environment also to non-experts. Ability to connect in an overview the information obtained by the petrographic features of a sedimentary rock with the natural processes which it may have underwent.
<b>ASSESSMENT METHODS</b>	Oral exam concerning: 1) identification under the polarized light microscopy of 1 thin section of sedimentary rock; 2) discussion on the topics developed during the class by a minimum of 2 open questions aimed to verify: (i) the correct use of scientific-technical language; (ii) the ability to develop an autonomous and critical thinking; (iii) the conceptual connection among the different studied topics. The minimum requirements for passing the exam are: (i) identification of the rock; (ii) sufficient knowledge of the petrogenesis of the sedimentary rock and ability to link the studied topics.
<b>EDUCATIONAL OBJECTIVES</b>	The aim of the course is to give to the students a wide overview of the sedimentary rocks that are very important for a geologist due their abundance on the Earth surface. During the course will be supply the instruments to describe and classify a sedimentary rock and to reconstruct the petrogenetic environment. To this purpose macro and micro textural features and chemical-mineralogical aspects will be illustrated with the aim to define the main processes involved during their history.
<b>TEACHING METHODS</b>	Frontal and laboratory lessons and compatible with the CdS economic resources, ½ of the laboratory hours will be used for field activity in form of didactic excursions.
<b>SUGGESTED BIBLIOGRAPHY</b>	Tucker E.M., 2010 – Geologia del sedimentario. Flaccovio Editore, Palermo. Tucker E.M., 1996 – Rocce sedimentarie. Flaccovio Editore, Palermo. Adams A.E., Mackenzie W.S., Guilford C., 1988 – Atlante delle rocce sedimentarie al Microscopio. Zanichelli, Bologna. Adams A.E., Mackenzie W.S., 1998 – Carbonate Sediments and Rocks Under the Microscope.

## SYLLABUS

<b>Hrs</b>	<b>Frontal teaching</b>
6	Course introduction; hints on the study methods and analytical approach.
4	Sedimentary processes: physical and chemical weathering, sedimentary composition, textures and structures, early and late diagenesis.
2	Soils and residual rocks: chemical features of the formation environment and of the involved substances, classification.
6	Clastic rocks as tool for palaeoenvironmental reconstructions and in the evaluation of the anthropogenic impact in recent sediments.
6	Organic rocks and oil-source rocks: characterization, petrogenesis and economic importance.
2	Sedimentary rocks as tool for the study of global perturbation events in the carbon cycle related to the Climate change.
4	Carbonate and siliceous organogenic rocks: diatomite, radiolarite, bioclastic arenite.
6	Chemical rocks: evaporite and travertine. Outline of CO <sub>2</sub> storage in carbonate sediments.
4	Stromatolite and condensed levels: composition and formation environments, bacterial mediation processes, linkage with study on the life out the Earth.
<b>Hrs</b>	<b>Workshops</b>
8	Textural features under the polarized light microscope of the main sedimentary rocks.
4	Practice exercises on data processing.
4	Compatible with the CdS economic resources, 4 hours of the practice exercise will be used for field activity in form of didactic excursions.