



General information	
Academic subject	Petrography
Degree course	<i>Bachelor's degree</i>
Academic Year	2021/2022
European Credit Transfer and Accumulation System (ECTS)	6
Language	<i>Italian</i>
Academic calendar (starting and ending date)	1 March 2022 - 15 June 2022
Attendance	<i>suggested</i>

Professor/ Lecturer	
Name and Surname	Annamaria Fornelli
E-mail	annamaria.fornelli@uniba.it
Telephone	080-5442661
Department and address	<i>Earth and geo-environmental science via E. Orabona 4 Bari</i>
Virtual headquarters	<i>Earth and geo-environmental science via E. Orabona 4 Bari</i>
Tutoring (time and day)	Monday and Thursday 11-13, room n. 33 third floor of Earth Science palace Campus Bari

Syllabus	
Learning Objectives	The main objectives of the course are to provide the principles of magmatism, sedimentary process and metamorphism, and to provide the basis for the recognition and classification of igneous, sedimentary and metamorphic rocks using textural and mineralogical parameters at the macroscopic scale on hand samples.
Course prerequisites	Mathematics, physic, chemistry, mineralogy
Contents	Magmatism Silicate classification. Chemical Composition of Earth as a planetary body. Composition of mantle and crust. Composition and structure of the common rock-forming minerals. Chemical, mineralogical and textural classification of magmatic rocks. Magmatic series. Introduction to phase equilibria; melting processes and magma production; crystallization and consolidation of magma. Magma genesis. Fractional crystallization, assimilation, mixing and mingling. Bowen series. Yoder and Tilley diagram. Sedimentary rocks Chemical and physical alteration of primary rocks; transport and deposition of sediments. Diagenesis, classification of silico-clastic and carbonate rocks. Metamorphism Solid-state reactions in rock materials; metamorphic reactions. Metamorphic facies. Metamorphic degree. Types of metamorphism. Metamorphism and geodynamic relationships. Classification of metamorphic rocks on the basis of protoliths and mineralogy.
Books and bibliography	Winter –An introduction igneous and metamorphic petrology. Prentice Hall C. Klein, A. R. Philpotts -Mineralogia e Petrografia Zanichelli
Additional materials	Slides of teacher, lecture notes

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars,	Out-of-class study



		field trips)	hours/ hours	Self-study
Hours				
150	48		102	
ECTS				
6	6			
Teaching strategy		Lectures and group work		
Expected learning outcomes		The students must be must be able to recognise and classify the igneous, sedimentary and metamorphic rocks using textural and mineralogical parameters understanding the petrogenetic environment.		
Knowledge and understanding on:		<ul style="list-style-type: none"> ○ Knowledge of the main geological processes forming the magmatic, sedimentary and metamorphic rocks that characterize the substrate of Planet Earth on which plants and animals develop. Lectures promote the achievement of this goal. ○ Plate tectonic ○ Petrogenesis 		
Applying knowledge and understanding on:		<ul style="list-style-type: none"> ○ Ability to understand the relationships between the main petrogenetic environments and plate tectonics. ○ Understanding the relationship between the rock substrate and ecosystems. ○ This ability is promoted through continuous talks during classroom lectures 		
Soft skills		<ul style="list-style-type: none"> • <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> ○ The students acquire the scientific method ○ Development of scientific procedures and judgements during the lectures ○ study of environment ○ petrographic features of the main rock types <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> ○ Acquisition of the specific and technical language of Petrography. ○ Ability to organize a scientific talk even with digital support. • <i>Capacities to continue learning</i> <ul style="list-style-type: none"> ○ Ability to understand English scientific papers. The students develop the capacities to select the fundamental concepts of petrography and make connections with other geological disciplines. The capacities to continue learning is actuated during the lectures and field trip. 		

Assessment and feedback	
Methods of assessment	Oral evaluation starting from the observation of macroscopic samples of rocks. The evaluation of this module is strongly integrated with that of the Petrography Laboratory teaching.
Evaluation criteria	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> <ul style="list-style-type: none"> ○ At the end of the course the student should know the principles of petrogenesis of igneous, sedimentary and metamorphic rocks. ○ recognize hand samples of the main lithologies. • <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> ○ Petrographic descriptions (rock descriptions) of metamorphic, sedimentary and igneous rocks through the hand specimen. • <i>Autonomy of judgment</i> <ul style="list-style-type: none"> ○ The students should be able to apply their observations to interpret the formation process of igneous, sedimentary and metamorphic rocks even



	<p>by igneous and metamorphic phase diagram.</p> <ul style="list-style-type: none">• <i>Communicating knowledge and understanding</i><ul style="list-style-type: none">○ The student must show critical thinking in the development of petrography concepts.• <i>Communication skills</i><ul style="list-style-type: none">○ The student must demonstrate appropriate use of petrographic language.• <i>Capacities to continue learning</i><ul style="list-style-type: none">○ The student must show the ability to make connections between the studied concepts of the discipline
Criteria for assessment and attribution of the final mark	Ownership of language and ability to connect concepts are evaluated with high marks. Learning by rote is rated insufficient.
Additional information	