



COURSE OF STUDY

ARCHAEOLOGY LM-2

ACADEMIC YEAR

2023-2024

ACADEMIC SUBJECT

ARCHAOMETRY; ETCS 6

General information	
Year of the course	1 st year
Academic calendar (starting and ending date)	1 st semester (25.09.2023 – 13.12.2023)
Credits (CFU/ETCS):	6
SSD	GEO/09
Language	Italian
Mode of attendance	Attendance is governed by the Course Didactic Regulations (art. 4) which can be consulted at the following link:

Professor/ Lecturer	
Name and Surname	Giacomo Eramo
E-mail	giacomo.eramo@uniba.it
Telephone	080 5442608
Department and address	Department of Earth and Geoenvironmental Sciences
Virtual room	Microsoft Teams (9gcsago)
Office Hours (and modalities: e.g., by appointment, on line, etc.)	To be arranged with the student

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
150	42		108
CFU/ETCS			
6			

Learning Objectives	The course enables the acquisition of knowledge and development of skills related to geomaterials and their transformation aimed at understanding the compositional, technological characters and alterative processes of archaeological materials.
Course prerequisites	Preliminary knowledge is not required

Teaching strategie	
Expected learning outcomes in terms of	
Knowledge and understanding on:	<p>The course presents multidisciplinary content mainly based on the mineralogy and petrography of geomaterials. Knowledge of the lithogenetic cycle and formation environments of geomaterials is fundamental to understanding the technological and cultural impact on past societies.</p> <p>The production cycles of stone materials, ceramics, glass, and mortars will be considered from a historical perspective, as well as aspects of physical-chemical degradation.</p> <p>Laboratory activities will focus mainly on the description and petrographic classification of stone, ceramic, glass and mortar materials.</p> <p>Particular attention will be paid to learning the specialized language necessary for understanding and communicating with other specialists or representatives of institutions.</p> <p>These objectives will be achieved through lectures, laboratory practice, exercises on excavation sites, and participation in seminars.</p>
Applying knowledge and understanding on:	<p>As a result of the knowledge the course will provide students with, they will be able to better understand the materials encountered in archaeological practice through more accurate documentation, including of their state of alteration, for informed and effective research and conservation design.</p> <p>In detail, students will be able to better understand the relationships between materials and the environment surrounding the discovery contexts from the perspective of production ecology and understanding the causes of weathering. These skills will be acquired and verified through the exercises planned during the course.</p>
Soft skills	<ul style="list-style-type: none"> • <i>Making informed judgments and choices</i> The articulation of the course will thus be aimed, through the comparison of different case studies and laboratory and field experiences that will be offered, at stimulating in students their maximum capacity for autonomous evaluation and judgment on what has happened in the past and on the research and conservation actions to be taken. • <i>Communicating knowledge and understanding</i> The student at the end of the course should possess in the first instance a good level of knowledge and exposure of the technical language necessary for the correct exposition of issues. In parallel, the student will have acquired the competence to explore and critically use the communication possibilities offered by new technologies, which will be used during the course, in function of correct and effective communication. • <i>Capacities to continue learning</i> The overall articulation of the course involves the learning of scientific concepts peculiar to the other teachings in the degree program and their ability to develop forms and methods of scientific and popular communication of the same. These elements, mutually integrated, are functional for the student to become increasingly autonomous and aware in professional activities. These abilities will be verified during the oral test.
Syllabus	
Content knowledge	<p>The course consists of 4 CFU of lectures and 2 CFU of laboratory activities. The topics covered during the lectures are aimed at outlining the compositional and technological characters of the materials treated and the alterative processes resulting from their use and defunctionalization.</p> <p>The course will cover the following topics:</p> <p>PART I: INTRODUCTION > Introduction to geomaterials: general characters and historical aspects.</p>

	<p>PART II: RAW MATERIALS AND TECHNOLOGIES</p> <ul style="list-style-type: none"> > Knappable raw materials: lithological characters, physical mechanical properties, pre- and post-depositional transformations; > Dimension and ornamental stones: stone deposits, aesthetic properties, technical properties, extraction and transformation; > Traditional ceramics: natural and artificial raw materials, forming methods, dynamics of the firing process, ceramic material categories and functionality; > Glass: raw materials in pre-industrial glass production, glass processing, types of glass and glass coatings; > Mortars: inorganic air and hydraulic binders, types of aggregate, additives, inorganic pigments, production technologies. <p>PART III: WEATHERING</p> <ul style="list-style-type: none"> > Weathering and decay of stone materials; > Weathering and decay of ceramic body and coatings; > Leaching/corrosion processes and physical mechanical stresses in the alteration of glass. <p>The exercises will cover the following experiences:</p> <ul style="list-style-type: none"> - sampling problems and strategies; - Petrographic observations conducted by optical and scanning electron microscopy on rocks, ceramics, glass and mortars: <p>1) recognition and classification of compositional, textural and microstructural characters; 2) recognition and classification of microscale alteration forms.</p>
Texts and readings	<ul style="list-style-type: none"> - Artioli G., Angelini I., 2010. Scientific methods and cultural heritage: an introduction to the application of materials science to archaeometry and conservation science. Oxford University Press, Oxford; - Heimann R.B., Maggetti M., 2014. Ancient and historical ceramics. Materials, technology, art and culinary traditions. Schweizerbart Science Publishers, Stuttgart; - Henderson J., 2013. Ancient Glass. An Interdisciplinary Exploration, Cambridge University Press, Cambridge; - Hunt, A. M. (Ed.), 2017. The Oxford handbook of archaeological ceramic analysis. Oxford University Press, Oxford; - Luedtke B.E., 1992. An archaeologist's guide to chert and flint. Cotsen Institute of Archaeology Press, Los Angeles; - Pecchioni E., Fratini F., Cantisani E., 2018. Le malte antiche e moderne tra tradizione ed innovazione. Pàtron editore, Bologna; - Velde B., Druc I., 1999. Archaeological ceramic materials: origin and utilisation, Springer, Berlin and New York.
Notes, additional materials	A selection of publications will be forwarded to students as materials for further study of the topics covered.
Repository	Teaching materials will be available in Teams in the "Files" folder related to the team "Archaeometry LM-2"

Assessment	
Assessment methods	The final examination will be in oral form. There are no intermediate or exempt examinations
Assessment criteria	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> <p>The student should be familiar with the chemical and physical properties of geomaterials that characterize their use in cultural heritage and production technologies. Evidence of lack of understanding of the fundamental concepts will result in termination of the exam and referral of the student to a later round.</p>

	<ul style="list-style-type: none"> • <i>Applying knowledge and understanding</i> The student must demonstrate the ability to use the basic knowledge acquired to identify the correct procedures to be followed in the documentation, sampling and petrographic analysis of materials used in cultural heritage. Demonstration by the student of having acquired these skills is a prerequisite for passing the examination. • <i>Autonomy of judgment</i> The student must demonstrate the ability to identify, in the context of a problem presented for his or her attention, the methodological choices most suitable for its solution. The demonstrated ability to propose alternative methods to those proposed during the exercises in the cases discussed in the exam will be enhanced through the award of a significant increase in the final grade. • <i>Communicating knowledge and understanding</i> The student should demonstrate the ability to communicate the level of understanding of principles and methods of inquiry with clarity and propriety of language that does not give rise to ambiguity or misunderstanding. Students will also be evaluated, during the oral examination, for their ability to expound on the topics of study. Insufficient propriety of language will preclude attainment of the highest grade on the exam. • <i>Communication skills/ Capacities to continue learning</i> The student should demonstrate understanding of the topics presented and the ability to individually explore these contents in depth, highlighting similarities and differences. He/she should be able to emphasize the interdisciplinarity of the topics addressed also by referring to concepts studied in other disciplines of the course of study. Discussion in the examination of topics with insights not covered in the course will be recognized with an increase in the final grade.
Final exam and grading criteria	During the oral examination, the student's knowledge of the course topics and ability to apply the course content will be ascertained. To pass the exam, the student must demonstrate sufficient knowledge in all course topics. In awarding the grade, the student's ability to analyze and synthesize, the ability to make connections between the different topics and also interdisciplinary, as well as his or her property of language will also be evaluated. The final grade is given in thirtieths. The exam is considered passed when the grade is greater than or equal to 18. The award of <i>Lode</i> is subject to evidence of developed autonomy of judgment and ability to argue about the course topics.
Further information	
	Petrographic laboratory activities will be carried out at the Palazzo di Scienze della Terra (University Campus, Via Orabona 4, Bari, Italy).