



## COURSE OF STUDY

ARCHAEOLOGY LM-2

## ACADEMIC YEAR

2023-2024

## ACADEMIC SUBJECT

LABORATORY OF ARCHAEOOMETRY; ETCS 3

General information	
Year of the course	1 <sup>st</sup> and 2 <sup>nd</sup> year
Academic calendar (starting and ending date)	1 <sup>st</sup> semester (25.09.2023 – 13.12.2023)
Credits (CFU/ETCS):	3
SSD	GEO/09
Language	Italian
Mode of attendance	Attendance is governed by the Course Didactic Regulations (art. 4).

Professor/ Lecturer	
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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
75		21	54
CFU/ETCS			
3			

<b>Learning Objectives</b>	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.
<b>Course prerequisites</b>	Preliminary knowledge is not required

<b>Teaching strategy</b>	
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	Lectures supported by <i>Power Point</i> presentations, videos and laboratory and field activities.
<b>Expected learning outcomes in terms of</b>	
<b>Knowledge and understanding on:</b>	<p>The course presents multidisciplinary content mainly based on the mineralogy and petrography of geomaterials. An introduction to multidisciplinary research design to investigate archaeological materials will be also provided.</p> <p>Laboratory activities will focus mainly on the description and classification of stone, ceramic, glass and mortar materials, as well as analytical strategies and data interpretation.</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>
<b>Applying knowledge and understanding on:</b>	<p>As a result of the knowledge and skills 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>These skills will be acquired and verified through the exercises planned during the course.</p>
<b>Soft skills</b>	<ul style="list-style-type: none"> <li>• <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.</li> <li>• <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.</li> <li>• <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.</li> </ul>
<b>Syllabus</b>	
<b>Content knowledge</b>	<p>The course consists of 1 CFU of lectures and 2 CFU of laboratory activities.</p> <p>The topics covered during the lectures are aimed at identifying natural and artificial geomaterials occurring in archaeological contexts, and at providing an introduction to the research design.</p> <p>The course will cover the following topics:</p> <p><b>PART I: INTRODUCTION</b></p> <p>&gt; Introduction to geomaterials: from rocks to artefacts.</p> <p><b>PART II: ANALYZING GEOMATERIALS</b></p> <p>&gt; Analysis and classification of loose and solid rocks;</p> <p>&gt; Analysis and classification of ceramics;</p> <p>&gt; Analysis and classification of glass;</p> <p>&gt; Analysis and classification of mortars;</p> <p>&gt; Grain-size analysis of loose and solid materials;</p>

	<p>&gt; Colorimetry;  <b>PART III: RESEARCH DESIGN</b>  &gt; Multidisciplinary research design;  &gt; Sampling strategies;  &gt; From questions to answers.  The exercises will cover the following experiences:  &gt; Sampling problems and strategies;  &gt; Petrographic observations conducted from macro to micro by optical and scanning electron microscopy on rocks, ceramics, glass and mortars;  &gt; Color measurements;  &gt; pH measurements in sediments.</p>
<b>Texts and readings</b>	<p>- 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;  - Banning E. B., 2000. The Archaeologist's Laboratory. The Analysis of Archaeological Data. Kluwer Academic Publisher, New York;  - Clive O., 2000. Sampling in Archaeology. Oxford University Press, Oxford;  - Hunt A. M. (Ed.), 2017. The Oxford handbook of archaeological ceramic analysis. Oxford University Press, Oxford;  - Pecchioni E., Fratini F., Cantisani E., 2018. Le malte antiche e moderne tra tradizione ed innovazione. Pàtron editore, Bologna;  - Pollard M., Heron C., 2008. Archaeological Chemistry. RSC Publishing, Cambridge.</p>
<b>Notes, additional materials</b>	A selection of publications will be forwarded to students as materials for further study of the topics covered.
<b>Repository</b>	Teaching materials will be available in Teams in the "Files" folder related to the team "Archaeometry LM-2"

<b>Assessment</b>	
Assessment methods	The final examination will be in oral form, and may include identification of hand specimens of geomaterials and artefacts. There are no intermediate or exempt examinations.
Assessment criteria	<ul style="list-style-type: none"> <li>• <i>Knowledge and understanding</i>  The student should be familiar with the methods to study natural and artificial geomaterials present in cultural heritage. 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.</li> <li>• <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 laboratory analysis of materials used in cultural heritage. Demonstration by the student of having acquired these skills is a prerequisite for passing the examination.</li> <li>• <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.</li> <li>• <i>Communicating knowledge and understanding</i>  The student should demonstrate the ability to communicate the level of understanding of principles and methods of research with clarity and propriety of language that does not give rise to ambiguity or misunderstanding. Students</li> </ul>

	<p>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.</p> <ul style="list-style-type: none"> <li>• <i>Communication skills/ Capacities to continue learning</i></li> </ul> <p>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.</p>
Final exam and grading criteria	<p>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 qualification, the student's ability to analyze and synthesize, the ability to make connections between the different topics with an interdisciplinary approach, as well as his or her property of language will also be evaluated.</p>
<b>Further information</b>	
	<p>Petrographic laboratory activities will be carried out at the Palazzo di Scienze della Terra (University Campus, Via Orabona 4, Bari, Italy).</p>