

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	HUMAN SCIENCES		
<b>ACADEMIC UNIT</b>	DEPARTMENT OF MEDITERRANEAN STUDIES		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	G-3	<b>SEMESTER</b>	7
<b>COURSE TITLE</b>	ARCHAEOLOGICAL SCIENCES		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
	3	6	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Specialised general knowledge		
<b>PREREQUISITE COURSES:</b>	None		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	English		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	No		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.aegean.gr/">https://eclass.aegean.gr/</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b> <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> <li>• <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></li> <li>• <i>Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></li> <li>• <i>Guidelines for writing Learning Outcomes</i></li> </ul>
<p>With the successful completion of the course students should be able:</p> <ul style="list-style-type: none"> <li>- to choose the suitable method for the corresponding information, in order to date, analyze, find the origin etc of an excavated artifact</li> <li>- To compose and make comprehensive proposals to study archaeological materials by interdisciplinary ways via the natural sciences</li> <li>- To evaluate the possibility of using cultural materials with archaeological sciences</li> <li>- To interpret cultural heritage in an interdisciplinary manner, i.e. with the knowledge of</li> </ul>

archeology and the main methodologies and techniques from the physical sciences to interpret phenomena and processes that are not possible only by history and archaeological evidence

- To understand the dual part of archeology and science by identifying the boundaries of any field of knowledge and reformulate queries to extract relevant data relating to archaeological interpretation

- Acquire general knowledge for a specific physical process, present the information easily understandable tabulations and images and practicing theoretically in numerous examples from the world

- To realize the value of the experiment and the emergence of important information that highlights an ancient finding

**General Competences**

*Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?*

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>.....</i>

- Search for, analysis and synthesis of data and information, with the use of the necessary technology

- Decision-making

- Working in an interdisciplinary environment

**(3) SYLLABUS**

- 1) Archaeometry-archaeological sciences (historical review, definition, examples)
- 2) Absolute & relative methods of dating
- 3) Archaeological materials- Geological materials (similarities, differences)
- 4) Dating techniques (Luminescence Dating, Radiocarbon dating (C-14), Tree ring dating (dendrochronology) and a brief review on other dating methods, amino acid, U-Th, obsidian hydration, archaeomagnetism, Lead-210)
- 5) Surface rock luminescence dating techniques
- 6) Brief report on physical methods of analysis (XRF, Neutron activation analysis, atomic absorption, ICP-MS, SIMS, LIBS, XRD, PLM)
- 7) Archaeoastronomy & impact on ancient cultures
- 8) Archaeo-geophysical prospection (magnetometer, electrometer, georadar, sonars, air photography/IR/Satellite)
- 9) Case Studies: Santorini eruption & Minoan decline, locating ancient Helike, Turin shroud, Obsidian & ceramic trade

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<p><b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i></p>	Face to face	
<p><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	PowerPoint presentations	
<p><b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i></p> <p><i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p>	<p><b>Activity</b></p>	<p><b>Semester workload</b></p>
	Lectures	39 hours (1.56 ECTS)
	Personal study	58 hours (2.32 ECTS)
	Assignment	50 hrs (2 ECTS)
	End of semester exam	3 hours (0.12 ECTS)
	<b>Course total</b>	<b>150 hours (6 ECTS)</b>
<p><b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	Written exams at the end of the semester	

## (5) ATTACHED BIBLIOGRAPHY

### a) In Greek:

Liritzis, I. (1994) *Archaeometry. Dating methods in Archaeology*, Kardamitsa Publ, Athens.

Liritzis, I., (2005) *Archaeology and environment*, Kardamitsa publ., Athens.

Liritzis, I. (2007) *Natural Sciences in Archaeology*. Tipothito – G. Dardanos publ., Athens, 2nd ed.

Liritzis, I., (ed). (2007) *New technologies in Archaeognostic Sciences*, Gutenberg Publ, Athens.

Zacharias, N. (2021) *Dating the past*. Tipothito – G. Dardanos publ., Athens.

Zacharias, N. (ed.) (2022) *Archaeometry. Αρχαιομετρία. Absolute dating techniques and analysis methods*, Papazisi Publ.

### a) In English:

Liritzis, I, Singhvi, A.K, Feathers, J.K, Wagner, G.A, Kadereit, A, Zacharias, N, and Li, S-H (2013) *Luminescence Dating in Archaeology, Anthropology and Geoarchaeology: An Overview*. SpringerBriefs in Earth System Sciences.

Richards, M.P. and Britton, K. (eds) (2020) *Archaeological Science: An Introduction*. Cambridge: Cambridge University Press.

Tsirtsoni, Z. (éd.). (2016). *The Human Face of Radiocarbon*. Lyon: MOM Éditions. <https://doi.org/10.4000/books.momeditions.498>

Taylor, R.E., & Bar-Yosef, O. (2014). *Radiocarbon Dating: An Archaeological Perspective* (2nd ed.). Routledge. <https://doi.org/10.4324/9781315421216>

### International Journals

JAS | Journal of Archaeological Science | ScienceDirect.com by Elsevier

Archaeometry - Wiley Online Library

The Encyclopedia of Archaeological Sciences | Major Reference Works

Articles | Archaeological and Anthropological Sciences

Radiocarbon | Cambridge Core