

Subject card

Subject name and code	SC IV: Isotopic methods in archaeology, PG_00151589						
Field of study	Archaeology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		4.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Institute of Archaeology -> Faculty of History -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Łukasz Pospieszny				
	Teachers		dr Łukasz Pospieszny				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		2.0		70.0	102
Subject objectives	To introduce students to the basic isotopic methods used in the study of subfossil human, animal and plant remains, and the practice of analyzing and interpreting the data obtained.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[ARCHMU2_U04] Knows how to lead a debate	The student can conduct a scholarly discussion.	[SU1] oral statement/conversation/discussion
	[ARCHMU2_U02] Can formulate and test hypotheses related to simple research problems	The student is able to formulate and test research hypotheses in the field of isotopic archaeology.	[SU2] presentation/project/paper/report
	[ARCHMU2_U03] Can communicate on topics related to archaeology and archaeological heritage with diverse audiences	The student is able to disseminate the results of archaeological and scientific research.	[SU2] presentation/project/paper/report
	[ARCHMU2_K01] Is ready to critically evaluate his/her knowledge and received content	The student can critically assess content and their own knowledge regarding the past and methods of its study.	[SK2] presentation/project/paper/report
	[ARCHMU2_W02] Has an in-depth knowledge of the connections between archaeology and other sciences, allowing to integrate the achievements of various disciplines in the study of a selected era	The student is familiar with the connections between isotopic archaeology and the natural sciences.	[SW2] presentation/project/paper/report
	[ARCHMU2_U06] Is able to manage the work of a team in the conditions of office and field work	The student can lead a team of archaeologists and specialists from other fields of science.	[SU1] oral statement/conversation/discussion
	[ARCHMU2_W03] Knows to an in-depth degree the terminology, theories, methodology and tools of description in the field of archaeology and related sciences	The student has knowledge in the theory and practice of isotopic research in archaeology.	[SW2] presentation/project/paper/report
	[ARCHMU2_U01] Is able to use the knowledge he possesses – formulate and solve complex and unusual theoretical and practical problems through: - proper selection of sources and information derived from them, evaluation, critical analysis, synthesis and presentation of this information, - selection and application of appropriate methods and tools, including advanced information and communication techniques, - adaptation of existing methods and tools or development of new ones	The student can pose and answer research questions using appropriate categories of data, methods, and analytical tools.	[SU2] presentation/project/paper/report
	[ARCHMU2_U07] Is able to interact with others in a teamwork and take a leading role	The student can collaborate within research teams and take on the role of a leader.	[SU1] oral statement/conversation/discussion
Subject contents	Isotope Geochemistry - Basic Concepts. Isotopes of carbon and nitrogen: Dietary reconstruction. Radiocarbon dating and the reservoir effect. Isotopes of strontium: Mobility reconstruction. Isotopes of oxygen: Climate and mobility reconstruction. Non-standard isotope systems. Lipid analysis: Chromatography and mass spectrometry. Paleoproteomics.		
Prerequisites and co-requisites	Basic knowledge of world archaeology.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Successful completion of coursework and active participation in classes	51.0%	100.0%

Recommended reading	Basic literature	Pollard, A. M., Armitage, R. A., Makarewicz, C. A. 2023. Handbook of Archaeological Sciences, Wiley.
	Supplementary literature	Bentley, R. A. 2006. Strontium isotopes from the earth to the archaeological skeleton: A review. Journal of Archaeological Method and Theory 13(3), 135-187. Britton, K. 2019. Isotope Analysis for Mobility and Climate Studies. In: M. P Richards, S. Fraser, K. Britton (eds.), Archaeological Science: An Introduction. Cambridge: Cambridge University Press, 99-124. Casanova, E., Knowles, T. D. J., Bayliss, A. et al. 2020. Accurate compound-specific ¹⁴ C dating of archaeological pottery vessel. Nature 580, 506-510. Craig, O., Saul, H., Spiteri, C. 2020. Residue Analysis. In: M. Richard, K. Britton (eds.), Archaeological Science: An Introduction. Cambridge: Cambridge University Press, 70-98. Hendy, J., Van Doorn, N., Collins, M. 2020. Proteomics. In: M. P Richards, S. Fraser, K. Britton (eds.), Archaeological Science: An Introduction. Cambridge: Cambridge University Press, 35-69. Lanting, J. N., van der Plicht, J. 1998. Reservoir effects and apparent ¹⁴ C-ages, The Journal of Irish Archaeology IX, 151-164. Price, T. D. 2014. An Introduction to the Isotopic Studies of Ancient Human Remains, Journal of the North Atlantic Special Volume 7: Viking Settlers of the North Atlantic: An Isotopic Approach (2014-2018), 71-87.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Impact of pollutants on the isotopic composition of strontium in the natural environment. Radiocarbon dating of organic residues in ceramics. Isotopic reconstruction of the trophic food web.	
Work placement	Not applicable	

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