

## Subject card

|                                             |                                                                                                                                                     |                                                          |                                         |                                     |                   |            |     |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|-------------------|------------|-----|
| Subject name and code                       | , PG_00179420                                                                                                                                       |                                                          |                                         |                                     |                   |            |     |
| Field of study                              | Geology                                                                                                                                             |                                                          |                                         |                                     |                   |            |     |
| Date of commencement of studies             | October 2024                                                                                                                                        |                                                          | Academic year of realisation of subject |                                     | 2026/2027         |            |     |
| Education level                             | Bachelor's studies                                                                                                                                  |                                                          | Subject group                           |                                     |                   |            |     |
| Mode of study                               | full-time studies                                                                                                                                   |                                                          | Mode of delivery                        |                                     | at the university |            |     |
| Year of study                               | 3                                                                                                                                                   |                                                          | Language of instruction                 |                                     | Polish            |            |     |
| Semester of study                           | 5                                                                                                                                                   |                                                          | ECTS credits                            |                                     | 1.0               |            |     |
| Learning profile                            | academic                                                                                                                                            |                                                          | Assessment form                         |                                     | credit            |            |     |
| Conducting unit                             | Laboratory of Marine Geology -> Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector           |                                                          |                                         |                                     |                   |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                  |                                                          | dr Michalina Dzwoniarek-Konieczna       |                                     |                   |            |     |
|                                             | Teachers                                                                                                                                            |                                                          |                                         |                                     |                   |            |     |
| Lesson types                                | Lesson type                                                                                                                                         | Lecture                                                  | Tutorial                                | Laboratory                          | Project           | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                               | 15.0                                                     | 0.0                                     | 0.0                                 | 0.0               | 0.0        | 15  |
|                                             | 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                                                                                                                               | 15                                                       |                                         | 0.0                                 |                   | 0.0        | 15  |
| Subject objectives                          | Aim of the course is to acquaint students with the methods of research on minerals and rocks used in the study of artifacts and their conservation. |                                                          |                                         |                                     |                   |            |     |

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|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Learning outcomes               | Course outcome                                                                                                                                                                                                            | Subject outcome                                                                                                                                                                   | Method of verification                       |
|                                 | [GEOLL3_K03] is willing to exercise caution and criticism in receiving information from scientific literature, the Internet and other media related to natural sciences                                                   | is prepared to exercise caution and criticism in accepting information from scientific literature, the Internet and other media relating to environmental and historical sciences | [SK1] oral statement/conversation/discussion |
|                                 | [GEOLL3_W01] knows and understands the basic natural phenomena and explains their course in relation to geological processes                                                                                              | knows and understands the basic geological phenomena that impact to the state of preservation of historical objects                                                               | [SW4] test/exam - oral or written            |
|                                 | [GEOLL3_W03] knows and identifies paleontological, mineralogical, petrographic and structural objects using appropriate methods                                                                                           | knows and identifies historical objects made of mineral resources and geological, chemical and physical research methods to their analysis                                        | [SW4] test/exam - oral or written            |
|                                 | [GEOLL3_U01] is able to apply basic measurement and analytical techniques in the field and in the laboratory, plans to conduct research and measurements                                                                  | understands the working of basic measurement and analytical techniques used in specialist research on historic materials; plans to research program on historical objects         | [SU4] test/exam - oral or written            |
|                                 | [GEOLL3_U06] is able to identify geological objects and combine them with geological processes and anthropogenic environmental transformations                                                                            | is able to identify historical objects and connect them with geological and anthropogenic processes influencing their state of preservation                                       | [SU4] test/exam - oral or written            |
|                                 | [GEOLL3_K01] is willing to plan and implement, individually or as a team, the next stages of the entrusted task, take responsibility for its results, effectively cooperate in the team by performing various roles in it | is aware of the need to protect cultural heritage and is ready to plan and carry out research on entrusted historical material, taking responsibility for its results             | [SK4] test/exam - oral or written            |
| Subject contents                | [GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences                                                                                                                            | knows and understands the basic terms and terminology related to the subject                                                                                                      | [SW4] test/exam - oral or written            |
|                                 | 1. Basic terms related to the subject matter; introduction to the problems of archaeological and conservation research.                                                                                                   |                                                                                                                                                                                   |                                              |
|                                 | 2. Review of the main mineral and rock raw materials used in the past: mineralogy, petrography, geochemistry and provenance of raw materials.                                                                             |                                                                                                                                                                                   |                                              |
|                                 | 3. Use of mineral raw materials in ceramics, pigments and mortars.                                                                                                                                                        |                                                                                                                                                                                   |                                              |
|                                 | 4. Environmental and anthropogenic factors impact to the state of preservation of historic buildings and artifacts.                                                                                                       |                                                                                                                                                                                   |                                              |
|                                 | 5. Presentation of selected research and measurement methods used in archaeology and conservation; methods of sampling from historical objects and buildings.                                                             |                                                                                                                                                                                   |                                              |
|                                 | 6. Presentation of selected methods of conservation of mineral and rock historical objects.                                                                                                                               |                                                                                                                                                                                   |                                              |
| Prerequisites and co-requisites |                                                                                                                                                                                                                           |                                                                                                                                                                                   |                                              |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                  | Passing threshold                                                                                                                                                                 | Percentage of the final grade                |
|                                 | final test                                                                                                                                                                                                                | 51.0%                                                                                                                                                                             | 100.0%                                       |

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| Recommended reading | Basic literature                                               | <p>Antonelli F., Lazzarini L. 2015. An updated petrographic and isotopic reference database for white marbles used in antiquity. Rendiconti Lincei volume 26, p. 399413</p> <p>Bahn P.G., Renfrew C. 2002. Archeologia. Teorie, metody, praktyka. Prószyński i Sówka, Warszawa</p> <p>Barnett J.R. Miller S., Pearce E. 2006. Colour and art: A brief history of pigments. Optics &amp; Laser Technology 38: 445-453</p> <p>Doehne E., Price C.A. 2010. Stone Conservation. An Overview of Current Research. The Getty Conservation Institute. Los Angeles.</p> <p>Domasłowski W. (ed.) 2011. Zabytki kamienne i metalowe, ich niszczenie i konserwacja profilaktyczna. Wydawnictwo naukowe UMK. Toruń.</p> <p>Herz N., Garrison E.G. 1998. Geological Methods for Archaeology, Oxford.</p> <p>Michalska D., Szczepaniak M. (eds.) 2014. Geosciences in Archaeometry. Methods and case studies. Bogucki Wydawnictwo Naukowe, Poznań</p> <p>Quinn S.P. 2013. Ceramic Petrography: The Interpretation of Archaeological Pottery &amp; Related Artefacts in Thin Section. Archaeopress Archaeology, Oxfordshire.</p> <p>Weiner S., 2010: Microarchaeology. Beyond the Visible Archaeological Record. Cambridge University Press.</p> |
|                     | Supplementary literature                                       | Publications from specialist journals, e.g. Archaeometry, Geochronometria, Journal of Archaeological Science, Journal of Conservation Science, Journal of Cultural Heritage, Radiocarbon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                     | eResources addresses                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                     | Example issues/<br>example questions/<br>tasks being completed |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Work placement      | Not applicable                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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