

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                          |                                         |                                     |                                                                                                                      |            |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Geomorphology and science of soil, PG_00033325                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          |                                         |                                     |                                                                                                                      |            |     |
| Field of study                              | Environmental Protection                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          |                                         |                                     |                                                                                                                      |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          | Academic year of realisation of subject |                                     | 2026/2027                                                                                                            |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>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                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          | Language of instruction                 |                                     | Polish                                                                                                               |            |     |
| Semester of study                           | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                          | ECTS credits                            |                                     | 1.0                                                                                                                  |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          | Assessment form                         |                                     | credit                                                                                                               |            |     |
| Conducting unit                             | Laboratory of Palaeoenvironmental Research -> Department of Geomorphology and Quaternary Geology -> Faculty of Oceanography and Geography -> Rector                                                                                                                                                                                                                                                                                                |                                                          |                                         |                                     |                                                                                                                      |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                          | dr Sambor Czerwiński                    |                                     |                                                                                                                      |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                          |                                         |                                     |                                                                                                                      |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                                                                                              | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.0                                                      | 15.0                                    | 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                                                       |                                         | 2.0                                 |                                                                                                                      | 8.0        | 25  |
| Subject objectives                          | To become familiar with the main research methods used in geomorphology and soil science.To understand the general laws concerning the genesis and evolution of the forms of relief of the Earth's surface.To learn about the main soil-forming processes and factors and their influence on the spatial distribution on the globe.To learn about the determinants and negative transformations of anthropogenic transformation of the pedosphere. |                                                          |                                         |                                     |                                                                                                                      |            |     |

| Learning outcomes | Course outcome                                                                                                                                                                                                                                                                                                                    | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Method of verification                                                                                                            |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|                   | [OŚL3_U09] Prepares in Polish/English a short description of research, observation or problem task carried out during classes using appropriate scientific terminology.                                                                                                                                                           | Uses geomorphological and soil science terminology to a degree which makes it possible to refer to the literature on the subject in Polish and/or English.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report<br>[SU5] implementation of a problem task |
|                   | [OŚL3_U04] Uses specialist language in the discussion and properly uses the nomenclature in the field of environmental protection and individual disciplines related to it.                                                                                                                                                       | Uses scientific language, speaks and discusses topics related to geomorphological and soil science issues in Polish and/or a foreign language.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | [SU2] presentation/project/paper/report<br>[SU5] implementation of a problem task                                                 |
|                   | [OŚL3_U01] Performs tasks under supervision and independently in the field of analysis of the natural environment and the functioning of natural and man-made natural systems.                                                                                                                                                    | Is able to characterise basic laboratory and field methods in geomorphology and soil science.<br>Formulates basic problems concerning the causes of problems in meeting the nutritional needs of underdeveloped countries.<br>Analyses the causes and course of basic processes and phenomena in the lithosphere under anthropopressure.<br>Characterises the different areas of the globe, explaining the reasons for the diversity of plant growing conditions and the different types of farming associated with them.                                                                                                                                                              | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report                                           |
|                   | [OŚL3_K05] Identifies the level of her/his knowledge and skills, demonstrates the need to update knowledge about the environment and its protection, demonstrates the need for continuous professional training and personal development.                                                                                         | Demonstrates readiness for individual and social actions, including for preservation of ecological balance and protection of Earth resources.<br>Uses theoretical knowledge of geomorphology and soil science to correctly interpret the distribution of crops on Earth.                                                                                                                                                                                                                                                                                                                                                                                                               | [SK2] presentation/project/paper/report<br>[SK3] text preparation/written work                                                    |
|                   | [OŚL3_K06] Knows and appreciates the practical application of the acquired knowledge and skills in solving problems.                                                                                                                                                                                                              | Demonstrates readiness for individual and social action, including for the preservation of ecological balance and protection of Earth's resources.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report                                           |
|                   | [OŚL3_W01] Discusses the basic concepts of mathematics, physics, chemistry and biology. Describes physical, chemical and biological phenomena occurring in nature as well as geological, geomorphological and climatic conditions of the functioning of nature.                                                                   | Knows and classifies techniques of soil protection against degradation. Recognises the links between geomorphology and soil science with other scientific disciplines.<br>Defines basic concepts of geomorphology and soil science.<br>Explains the physical and chemical determinants of the most important soil-forming processes.<br>Characterises the basic geomorphological processes and factors and their influence on soil formation.<br>Characterises the importance of geomorphological and palaeopedological studies in reconstructing changes in the natural environment.<br>Characterises the multiplicity of anthropogenic impacts on soils in different climatic zones. | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report<br>[SW5] implementation of a problem task |
| Subject contents  | 1. Sources of cartographic information in geomorphology and soil science. 2. The concept of soil and its role in the environment. 3. Geomorphological determinants of soil cover formation. 4. Division of soil formations and their organoleptic identification. 5. The influence of soil use on their agricultural suitability. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |

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| Prerequisites and co-requisites                                |                                                                          |                                                                                                                                                                                  |                               |
| Assessment methods and criteria                                | Subject passing criteria                                                 | Passing threshold                                                                                                                                                                | Percentage of the final grade |
|                                                                | Presentation                                                             | 51.0%                                                                                                                                                                            | 30.0%                         |
|                                                                | Raport                                                                   | 51.0%                                                                                                                                                                            | 70.0%                         |
| Recommended reading                                            | Basic literature                                                         | Davies T., Korup R., Clague J. (red), 2021. Geomorphology and Natural Hazards: Understanding Landscape Change for Disaster Mitigation, AGU Advanced Textbooks, John Wiley & Sons |                               |
|                                                                | Supplementary literature                                                 | White, R. E. 2005. Soil Science & Geoarchaeology. Principles and Practice of Soil Science: The Soil as a Natural Resource, 4th Edition.                                          |                               |
|                                                                | eResources addresses                                                     |                                                                                                                                                                                  |                               |
| Example issues/<br>example questions/<br>tasks being completed | List the main soil components and describe them                          |                                                                                                                                                                                  |                               |
|                                                                | Main soil horizons according to the Systematics of soils of Poland, 2019 |                                                                                                                                                                                  |                               |
|                                                                | Difference between mineral and organic soils                             |                                                                                                                                                                                  |                               |
|                                                                | Elementary soil-forming processes                                        |                                                                                                                                                                                  |                               |
| Work placement                                                 | Not applicable                                                           |                                                                                                                                                                                  |                               |

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