

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                |                                                          |                                         |                                     |                                                |            |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|------------------------------------------------|------------|-----|
| Subject name and code                       | Sea floor geology - lecture, PG_00092775                                                                                                                                                                                                                                                                       |                                                          |                                         |                                     |                                                |            |     |
| Field of study                              | Marine Hydrography                                                                                                                                                                                                                                                                                             |                                                          |                                         |                                     |                                                |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                                   |                                                          | Academic year of realisation of subject |                                     | 2025/2026                                      |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                                                                             |                                                          | Subject group                           |                                     | Obligatory subject group 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                            |                                     | 2.0                                            |            |     |
| Learning profile                            | practical                                                                                                                                                                                                                                                                                                      |                                                          | Assessment form                         |                                     |                                                |            |     |
| 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 Ewa Szymczak                         |                                     |                                                |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                       |                                                          |                                         |                                     |                                                |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                    | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                        | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                          | 30.0                                                     | 0.0                                     | 0.0                                 | 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                                 |                                                | 23.0       | 55  |
| Subject objectives                          | The aim of the course is to learn about the origin of the oceans and to understand the geological processes determining the formation, geological structure and morphology of the ocean floor, the distribution patterns of the different types of bottom sediments and methods for exploring the ocean floor. |                                                          |                                         |                                     |                                                |            |     |

| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Subject outcome                                                                                                                                                                     | Method of verification                                                                |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                 | [HML3-W03] directions of development and the latest discoveries in the field of scientific disciplines forming the theoretical basis appropriate to the field of study                                                                                                                                                                                                                                                                                                                                                                                | identify and characterise methods of marine geological research and the scientific discoveries made on the basis of them                                                            | [SW4] test/exam - oral or written<br>[SW1] oral statement/<br>conversation/discussion |
|                                 | [HML3-W01] selected facts, phenomena and processes, as well as methods and theories concerning them, explaining the complex relationships between them, constituting basic general knowledge in the field of scientific disciplines forming the theoretical foundations specific to the field of study                                                                                                                                                                                                                                                | explains and characterises the relationship between physical processes and geological processes in the marine environment                                                           | [SW4] test/exam - oral or written<br>[SW1] oral statement/<br>conversation/discussion |
|                                 | [HML3-U14] use the applicable terminology in presenting and discussing problems related to the field of study                                                                                                                                                                                                                                                                                                                                                                                                                                         | uses appropriate terminology in describing the geological structure and morphology of the ocean and seabed                                                                          | [SU1] oral statement/conversation/<br>discussion<br>[SU4] test/exam - oral or written |
|                                 | [HML3-W04] the issue of measurements related to the exploration of sea basins and inland waters and tools allowing to describe, interpret and present the results of measurements                                                                                                                                                                                                                                                                                                                                                                     | identify and characterise methods of marine geological research and the scientific discoveries made on the basis of them                                                            | [SW4] test/exam - oral or written<br>[SW1] oral statement/<br>conversation/discussion |
|                                 | [HML3-W02] selected phenomena and processes occurring in the hydrosphere, atmosphere, lithosphere and biosphere, their interconnections and relations, as well as practical applications of this knowledge in professional activities related to the field of study                                                                                                                                                                                                                                                                                   | analyses the causes, course and effects of geological processes in the marine environment                                                                                           | [SW4] test/exam - oral or written<br>[SW1] oral statement/<br>conversation/discussion |
|                                 | [HML3-U08] independently use the professional literature available in traditional and electronic form, make an assessment, critical analysis and synthesis as well as the correct interpretation of the information obtained                                                                                                                                                                                                                                                                                                                          | analyses, based on source materials, the morphological-structural elements of the sea and ocean floor, the distribution of sediments and their relationship to geological processes | [SU1] oral statement/conversation/<br>discussion<br>[SU4] test/exam - oral or written |
| Subject contents                | The history of ocean floor research and contemporary research programmes. Evolution of ocean basins, history of geological development of modern oceans. Oceanic crust and its structure in the light of recent research results. Ocean basin floor topography forms and their relationship to geological processes. Sources of sedimentary material input to the seas and oceans. The regularities of the spatial distribution of sediments in the ocean. Marine sediments and their rate of sedimentation. Postglacial evolution of the Baltic Sea. |                                                                                                                                                                                     |                                                                                       |
| Prerequisites and co-requisites |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                     |                                                                                       |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Passing threshold                                                                                                                                                                   | Percentage of the final grade                                                         |
|                                 | written exam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 51.0%                                                                                                                                                                               | 100.0%                                                                                |

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|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                               | <p>Duxbury A. C., Duxbury A. B., Sverdrup K. A. 2002: Oceans of the World. Wyd. Naukowe PWN</p> <p>Frisch W., Meschede M., Blakey R. 2011. Plate tectonics. Continental drift and mountain building. Springer</p> <p>Leontiew O. K. 1989. Geology of the sea. Wyd. Naukowe PWN</p> <p>Lallemand S., Funicello F., 2009. Subduction zone dynamics, Springer-Verlag Berlin</p> <p>Yuen, D.A., Maruyama, S., Karato, S.-i., Windley, B.F. (Eds.), 2007, Superplumes: Beyond Plate Tectonics, Springer</p> <p>Witak M., 2013. Outline of the postglacial evolution of the Southern Baltic. [in:] J. Cyberski (Ed.), Coastal protection in state maritime policy.</p>                                                                                                                                                                |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                       | <p>BURKE K.: Plate Tectonics, the Wilson Cycle and Mantle Plumes: Geodynamics from the Top. Annual Review of Earth and Planetary Sciences, Vol. 39.</p> <p>ERICKSON J.: Marine Geology: Undersea Landforms and Life Forms. Facts on File. New York 1996.</p> <p>FLOYD P. A. (ed.): Oceanic Basalts. Springer Science, 1991</p> <p>KEAREY P., KLEPEIS K. A., VINE F. J.: Global tectonics. Wiley-Blackwell, 2009.</p> <p>KENT C. C.: Plate Tectonics and Crustal Evolution. Butterworth-Heinemann, 2003</p> <p>LARTER R. D., LEAT P. T.: Intra-Oceanic subduction systems, The Geological Society, Londyn 2003</p> <p>SARLE R.: Mid-Ocean Ridges. University Printing House, Cambridge 2013</p> <p>SETON M. et al.: Global continental and ocean basin reconstructions since 200 Ma. Earth-Science Reviews, No 113(34), 2012</p> |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                           | Adresy na platformie eNauczanie:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Example issues/<br>example questions/<br>tasks being completed | <p>Describe the types of oceanic basalts and the criteria for distinguishing them.</p> <p>Name the main morphological units of the oceans.</p> <p>Compare the active and passive marginal edges of the ocean.</p> <p>Characterise the distribution of biogenic sediments, identify factors influencing their distribution.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |