University of Gdańsk

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | Marine Geology - lecture, PG_00205256 | | |
| Field of study | Oceanography | | |
| Date of commencement of studies | October 2026 | 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 | 1 | Language of instruction | Polish |
| Semester of study | 2 | ECTS credits | 3.0 |
| Learning profile | academic | Assessment form | exam |
| 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

Additional information:

lecture, disscussion

**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 | 43.0 | 75 |

**Subject objectives**

The aim of the course is to introduce students to the geological processes shaping the oceans, as well as to the structure and evolution of the oceanic crust. The course covers the structure and morphology of the ocean floor in relation to tectonic processes, sources and mechanisms of sediment supply to seas and oceans, types of marine sediments, their sedimentation rates, and patterns of their spatial distribution. Students will also become familiar with the history of ocean floor research, contemporary research methods, and major scientific programmes, including ocean drilling programmes and their key achievements. Particular attention is given to the postglacial evolution of the Baltic Sea.

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [OCEANL3-U04] is able to independently search for information in Polish and foreign specialist literature, as well as on the Internet and in databases | independently searches for and selects information from Polish and English-language specialist literature, as well as from the Internet and databases, and uses it to describe seabed morphology, sediments, and geological processes | [SU4] test/exam - oral or written |
| [OCEANL3-W05] has an advanced knowledge of techniques, research methods, and tools (mathematical, statistical, and computational) used by oceanographers to describe and interpret processes and phenomena occurring in the marine environment | characterizes techniques, research methods, and tools used in geological studies of the seabed | [SW4] test/exam - oral or written |
| [OCEANL3-W02] has a broad knowledge and understanding of physical, biological, chemical, and geological processes and phenomena occurring in aquatic environments, with particular emphasis on the marine environment | characterizes and interprets geological processes and the associated physical, chemical, and biological phenomena occurring within the oceanic crust and the marine environment | [SW3] text preparation/written work |
| [OCEANL3-W01] has an advanced knowledge and understanding of the terminology used in oceanography and related exact and natural sciences (in Polish and a selected foreign language) | uses terminology from marine geology to describe geological processes occurring in seas and oceans | [SW4] test/exam - oral or written |
| [OCEANL3-U06] is able to formulate and solve advanced problems related to the functioning of individual components of the marine environment, using knowledge from various fields and scientific disciplines | analyzes relationships between components of the marine environment, with particular emphasis on geological processes, integrating knowledge from various natural science disciplines | [SU4] test/exam - oral or written |
| [OCEANL3-U01] is able to use the current scientific terminology in the field of oceanography in various forms of expression | uses scientific terminology in marine geology to describe processes and structures of the ocean floor | [SU4] test/exam - oral or written |

## Subject contents

1. History of ocean floor research and contemporary research programmes.
2. Formation of modern oceans and their geological evolution, with particular emphasis on magmatic and tectonic processes leading to the formation of the oceanic crust.
3. Structure of the oceanic crust.
4. Major morphological features of the ocean floor (mid-ocean ridges, oceanic trenches, abyssal basins, continental shelves, continental slopes) and their relationship with tectonic processes.
5. Sources and mechanisms of sediment supply to seas and oceans.
6. Spatial distribution patterns of marine sediments in relation to depth, distance from land, biological productivity, and hydrodynamic conditions.
7. Types of marine sediments and the rate and controlling factors of sedimentation.
8. Geological history of the Baltic Sea, with particular emphasis on its postglacial evolution, sea-level changes, salinity variations, and sedimentary processes shaping the present-day Baltic environment.

## Prerequisites and co-requisites

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Exam | 51.0% | 100.0% |

| | | |
|---|---|---|
| Recommended reading | Basic literature | Duxbury A. C., Duxbury A. B., Sverdrup K. A. 2002: Oceans of the World. Wyd. Naukowe PWN<br><br>Erickson J. 1996: Marine Geology: Undersea Landforms and Life Forms. Facts on File<br><br>Frisch W., Meschede M., Blakey R. 2011. Plate tectonics. Continental drift and mountain building. Springer<br><br>Larter R.D., Leat P.T. 2003 Intra-Oceanic subduction systems. The Geological Society London<br><br>Leontiew O. K. 1989. Geology of the sea. Wyd. Naukowe PWN<br><br>Lallemand S., Funiciello F.,2009. Subduction zone dynamics, Springer-Verlag Berlin<br><br>Yuen, D.A., Maruyama, S., Karato, S.-i., Windley, B.F. (Eds.), 2007, Superplumes:Beyond Plate Tectonics, Springer<br><br>Witak M., 2013. Outline of the postglacial evolution of the Southern Baltic. [in:] J. Cyberski (Ed.), Coastal protection in state maritime policy. |
| | Supplementary literature | Leontjew O.K. 1972 Bottom of the Ocean. Wyd. Geologiczne<br><br>Stanley S. M., 2002, History of the Earth. Wydawnictwo Naukowe PWN |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | Describe the types of oceanic basalts and the criteria for distinguishing them.<br><br>Name the main morphological units of the oceans.<br><br>Compare the active and passive marginal edges of the ocean.<br><br>Characterise the distribution of biogenic sediments, identify factors influencing their distribution. | |
| Work placement | Not applicable | |

Document generated electronically. Does not require a seal or signature.