University of Gdańsk

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | Marine Physics - lecture, PG_00205317 | | |
| Field of study | Oceanography | | |
| Date of commencement of studies | October 2027 | Academic year of realisation of subject | 2028/2029 |
| 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 | 2 | Language of instruction | Polish |
| Semester of study | 4 | ECTS credits | 3.0 |
| Learning profile | academic | Assessment form | exam |
| Conducting unit | Laboratory of Physical Oceanography -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr Jordan Badur | |
| | 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 | 43.0 | 75 |

**Subject objectives**

Acquire knowledge and understanding of basic laws governing physical processes occurring in the sea

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [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 | Knowledge about research methods and approaches (mathematical, statistical and IT tools) used in oceanography in order to describe and interpret physical phenomena in the sea | [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 | Knowledge and understanding of the processes and phenomena occurring in the sea. | [SW4] test/exam - oral or written |
| [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) | Knowledge and understanding of the basic concepts and terms used in the field of marine physics and related science (in Polish and English) | [SW4] 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 | Ability to use correctly science terminology in different forms of expression in the field of marine physics | [SU4] test/exam - oral or written |

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|---|---|---|---|
| Subject contents | Black body radiation laws.Solar energy flux at the Earth and its distribution, greenhouse effct. Molecular structure and physical properties of seawater. Forces acting on water in the ocean. Elements of seawater thermodynamics. Equilibrium and water movement - examples of different type of sea currents, wave and convection. Molecular and turbulent exchange of mass, heat and momentum. Acoustic waves in the sea. | | |
| 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 | Dera J.: Marine Physics. Wyd. PWN, Warszawa, 1983, 2003.<br><br>Druet, Kowalik, 1970, Marine dynamics, Wyd. Morskie Gdańsk | |
| | Supplementary literature | Massel S.R., 2010. Hydrodynamical processes in marine ecosytems. Wyd. Uniwersytetu Gdańskiego. | |
| | eResources addresses | | |
| Example issues/ example questions/ tasks being completed | Analysis of different expressions.for seawater equation of state. | | |
| Work placement | Not applicable | | |

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