University of Gdańsk

Subject card

Subject name and code	Specialization workshops at sea - field exercises, PG_00103334		
Field of study	Oceanography		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	undergraduate 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	4.0
Learning profile	academic	Assessment form	
Conducting unit	Katedra Oceanografii Chemicznej i Geologii Morza -> Faculty of Oceanography and Geography		
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	0.0	70.0	0.0	0.0	0.0	70

E-learning hours included: 0.0

Additional information:

Conducting measurements and observationsAnalysis and discussion of the results obtainedWorking in groupsConducting experiments, analyses

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	70	10.0	25.0	105

Subject objectives

The aim of the course is to introduce the student to the specifics of working as an oceanographer and basic oceanographic equipment, including conducting research and making basic analyses in chemistry, geology, physics and marine biology.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANL3-K05] is willing to take responsibility for the safety of his/ her own and others' work, is aware of the risks and threats resulting from the work performed	the student is ready to be responsible for the safety of his/ her own work and that of others, to take care of the equipment entrusted to him/her, and is aware of the hazards of working in the field and laboratory	[SK6] demonstration of practical skills [SK8] observation of student's independent or team work
[OCEANL3-K01] is willing to plan and implement, individually or as a team, the subsequent stages of the entrusted task, is willing to take responsibility for the results of these works, effectively cooperates in the team and performs various roles in it	the student is ready to be responsible for his/her own work and to follow the principles of work in a team, feeling responsible for jointly realised tasks	[SK2] presentation/project/paper/ report [SK6] demonstration of practical skills [SK8] observation of student's independent or team work
OCEANL3-W05	the student has an advanced knowledge of the fundamental techniques, research methods and statistical tools used in the work of an oceanographer in order to characterize and interprete marine processes	[SW5] implementation of a problem task
OCEANL3-U05	the student is able to use specialised computer software and statistical methods in data analysis and description of processes occurring in the marine environment	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
OCEANL3-U02	the student is able to make observations and conduct geological, physical, chemical and biological tests and measurements individually and in teams, using suitably selected measuring and analytical techniques	[SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
OCEANL3-U11	the student is able to work individually as well as cooperatively in laboratory and field groups, performing a variety of functions and tasks	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
OCEANL3-U03	the student is able to analytically and synthetically describe the results of the research and to make correct conclusions based on them	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU5] implementation of a problem task
OCEANL3-W01	the student has an advanced knowledge and understanding of terminology used in oceanography	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work [SW5] implementation of a problem task
OCEANL3-W07	the student knows and understands the basic rules of safety and hygiene of the work of an oceanographer at sea and in the coastal zone	[SW1] oral statement/ conversation/discussion

Subject contents	

A. On-board activitiesA.1 Chemical part:

- sampling of seawater and analysis of selected parameters (e.g. oxygen concentration, pH, alkalinity, salinity) in the Baltic Sea water column;
- discussion of the variability of the parameters studied in relation to environmental conditions;
- indication of processes and phenomena influencing the chemical composition of sea water.

A.2 Geological part:

- sampling of disturbed and undisturbed sediments;
- macroscopic description of sediments and preparation of samples for further laboratory analysis;
- use of non-invasive methods in geological investigations.

A.3 Physical part:

- bathymetric measurements and identification of the wreck;
- measurements of selected meteorological parameters, sounding of thermohaline structure, simplified assessment of water transparency and measurements of vertical profile of topside light spectra;
- water column surveys using split beam echosounder.

A.4 Biological section:

- collection (at designated stations and profiles in the Gulf of Gdansk) and preservation of samples of marine organisms belonging to different ecological formations, using selected methods and tools;
- methods for obtaining basic environmental data (environmental background);
- biological material for biotechnological studies.

B. Field activitiesB.1 Chemical part:

- spatial variability of selected physico-chemical parameters in the marine coastal zone;
- issue of representativeness of testing station;
- sampling of surface water and measurement of basic parameters (e.g. temperature, salinity, pH, alkalinity, Eh, oxygen) at selected stations located in the sea shore area.

B.2 Geological part:

- geological processes in the sea coastal zone (Hel Peninsula region) (coast types, sea coast morphology);
- methods of coastal protection;
- measurements of the sea shore (use of GPS RTK).

B.3 Physical part:

- conception of measurements during workshops in the sea;
- documentation of surveys carried out at measuring stations;
- getting acquainted with the characteristics and learning how to use the CTD probe and the light meter in practice.

B.3 Biological part:

- Collection and preservation of samples of marine organisms belonging to different ecological formations from coastal areas of the Gulf of Gdansk, using selected methods and tools.

C. Laboratory activitiesC.1 Chemical part:

- Validation and selection of analytical methods in environmental studies;
- analysis of concentration of selected metals in subsurface water samples using atomic absorption spectrometry (ASA).

C.2 Geological part:

- analysis of sediment grain size, including sand and gravel fractions (Zingg diagram);
- graphical and statistical methods for processing the results of granulometric analyses

C.3 Physical part:

- Data analysis in the computer laboratory: preparation of a temperature-salinity diagram; analysis of top-down illumination spectra in the water depth; preparation of a bathymetric plan; results of the detection of a submerged wreck

C.4 Biological part:

- qualitative-quantitative analysis of marine organisms collected during fieldwork in the Gulf of Gdansk;
- discussion of selected physiological and anatomical aspects of marine organisms analysed.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>determining the final grade based on partial grades received during the course</td><td>51.0%</td><td>100.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Course script Fundamentals of interdisciplinary Baltic Sea research

https://oig.ug.edu.pl/strona/96385/skrypt_do_zajec_podstawy_interdyscyplinarnych_badan_morza_baltyck</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">recommended by the trainers</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">specified by the trainers</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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