

**Subject card**

|   |   |  |                       |                                     |  |            |     |
|---|---|--|-----------------------|-------------------------------------|--|------------|-----|
| Subject name and code                       | , PG_00120318   |  |                       |                                     |  |            |     |
| Field of study                              | Oceanography  |  |                       |                                     |  |            |     |
| Date of commencement of studies             | October 2024  | Academic year of realisation of subject                  |                       |                                     | 2024/2025                                      |            |     |
| Education level                             | postgraduate 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                            | academic  | Assessment form  |                       |                                     |  |            |     |
| Conducting unit                             | Katedra Ekologii Morza -> Faculty of Oceanography and Geography   |  |                       |                                     |  |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  |  | dr Halina Kendzierska |                                     |  |            |     |
|   | Teachers  |  |                       |                                     |  |            |     |
| Lesson types                                | Lesson type   | Lecture  | Tutorial              | Laboratory                          | Project  | Seminar    | SUM |
|   | Number of study hours   | 0.0  | 0.0                   | 30.0                                | 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   |                       | 5.0                                 |  | 15.0       | 50  |
| Subject objectives                          | Knowledge development and understanding of (1) how to plan environmental, laboratory and survey studies in biological oceanography, (2) mathematical and statistical methods used to analyse results, (3) how to present results graphically and (4) how to interpret them. |  |                       |                                     |  |            |     |

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| Learning outcomes   | Course outcome  | Subject outcome   | Method of verification  |
|   | [OCEANMU2-U06] can use specialized computer software and advanced mathematical and statistical methods in data analysis and description of processes and phenomena occurring in the marine environment and coastal zone   | is able to use specialised computer software, i.e. Primer, Statistica, QGIS in data analysis and description of phenomena and processes occurring in the marine environment and the coastal zone (curriculum content: B.1-7).   | [SU2] presentation/project/paper/report<br>[SU3] text preparation/written work<br>[SU8] observation of student's independent or team work |
|   | [OCEANMU2-U04] is ready to develop in an analytical and synthetic way research and analysis results and based on them creating conclusions  | is able to analytically and synthetically analyse the results of research, e.g. questionnaires and laboratory analyses, and to draw correct conclusions based on them.  | [SU2] presentation/project/paper/report<br>[SU3] text preparation/written work<br>[SU8] observation of student's independent or team work |
|   | [OCEANMU2-K01] is ready to plan, implement and supervise, individually or collectively, next stages of the entrusted task, is ready to take responsibility for its results, cooperates effectively in the team and performs its functions in it various functions, including managerial ones  | is ready to plan and carry out individually or in teams survey research and its phases, feels responsible for its results.  | [SK2] presentation/project/paper/report<br>[SK8] observation of student's independent or team work  |
|   | [OCEANMU2-W09] knows and understands legal regulations regarding intellectual property rights and their application in scientific work  | knows and understands the fundamental legal regulations on intellectual property rights and their application in scientific work.   | [SW2] presentation/project/paper/report<br>[SW3] text preparation/written work  |
| [OCEANMU2-W05] knows and understands the principles of planning and conducting field and laboratory research as well as advanced methods and tools of scientific research, especially in the field of the studied specialty | knows and understands in detail the principles of planning and conducting research, including surveys, and the mathematical, statistical and IT methods and tools used.   | [SW2] presentation/project/paper/report<br>[SW3] text preparation/written work  |   |
| Subject contents  | <p>B. Laboratory issues</p> <p>B.1 Principles of planning environmental research, environmental and laboratory experiments and surveys.</p> <p>B.2. Reliability in research and respect for intellectual property.</p> <p>B.3. Principles of database preparation and processing capabilities.</p> <p>B.4. Statistical analyses of the results of environmental studies, environmental and laboratory experiments (including standardisation, data normalisation and transformation, normality tests, parametric and non-parametric tests, correlation and regression, multivariate tables).</p> <p>B.5 Principles of survey preparation and report of results.</p> <p>B.6. Preparation and administration of a survey and preparation and presentation of a survey report.</p> <p>B.7 Graphical representation, interpretation and drawing conclusions from analysed survey results.</p> <p>B.8. Analysis and interpretation of marine assemblage data including cluster analysis, MDS multidimensional scaling, SIMPER analysis, PCA principal component analysis,</p> <p>B.9. Map creation of study areas.</p> |   |   |
| Prerequisites and co-requisites   |   |   |   |
| Assessment methods and criteria   | Subject passing criteria  | Passing threshold   | Percentage of the final grade   |
|   | assignment papers, reports  | 51.0%   | 100.0%  |
| Recommended reading   | Basic literature  | <p>1. Clarke, K. R., Warwick, R. M., 2001. Change in marine communities: an approach to statistical analysis and interpretation, 2nd edition. PRIMER-E, Plymouth, 172 p.</p> <p>2. Creswell, J.W., 2003. Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.). SAGE Publications, 260 p.</p> <p>3. Krok E., 2015. Budowa kwestionariusza ankietowego a wyniki badań. Zeszyty Naukowe Uniwersytetu Szczecińskiego 874 , Studia Informatica 37, p. 55-73.</p> <p>4. Towned J., 2002. Practical Statistics for Environmental and Biological Scientists. Wiley&amp; Sons Ltd., 276 p.</p> <p>5. Urbański J., 2008. GIS in environmental research (in Polish). Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk. 252 p.</p> |   |
|   | Supplementary literature  | -   |   |
|   | eResources addresses  | Adresy na platformie eNauczanie:  |   |
| Example issues/<br>example questions/<br>tasks being completed  |   |   |   |
| Work placement  | Not applicable  |   |   |

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