University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Statistics for Oceanographers - lecture, PG_00205312 | | |
| 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<br>Optional subject group |
| Mode of study | full-time studies | Mode of delivery | at the university |
| Year of study | 2 | Language of instruction | Polish |
| Semester of study | 3 | ECTS credits | 2.0 |
| Learning profile | academic | Assessment form | credit |
| Conducting unit | Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr Maciej Mańko | |
| | Teachers | | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15 |

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 | 15 | 1.0 | 34.0 | 50 |

**Subject objectives**

The aim of the course is to provide students with basic knowledge of general statistics in the field of statistical description and inference methods. The methods discussed will provide students with the basis for deeper study of statistical methods as part of specialized subjects taken during their studies.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [OCEANL3-K03] is ready to exercise caution and criticism in accepting information from scientific literature, the Internet and other media relating to natural sciences | Is ready to make independent decisions regarding the application of the acquired statistical methods and to critically evaluate the obtained results of statistical research (program content of the lecture and exercises). | [SK4] test/exam - oral or written |
| [OCEANL3-U07] is able to communicate with the socio-economic environment, both verbally and in writing, on broadly understood specialized issues in oceanography | Able to communicate using basic terminology in the field of statistics; explain the meaning of basic statistical terms and their interpretations in social communication | [SU4] 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) | Knows and understands the terminology of methods at an advanced level<br>statistics used in oceanography | [SW4] test/exam - oral or written |

<table>
<tr><td>Subject contents</td><td>1. Introductory issues - The concept and methods of statistics, applications of statistics; Stages of statistical research; Basic terminology; Measurement scales2. Data preparation and transformation; Descriptive statistics: measures of central tendency3. Dispersion measures, feature and probability distributions4. Verification of statistical hypotheses (formulation of hypotheses, level of significance, types of statistical tests); Interval estimation5. Multi-way tables, frequency analysis; Two-sample tests6. Linear regression (estimation and interpretation of function parameters, assessment of fit, testing the significance of the regression coefficient) and correlation (Pearson's linear correlation coefficient and testing its significance; Spearman's rank correlation coefficient and testing its significance); Estimation and interpretation of trend function parameters7. Multiple regression; Introduction to multivariate analyses; Interpretation of ordination charts and classification trees8. Presentation of statistical data: series, tables, charts</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Grade from exam</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>Łomnicki A., 2003, Introduction to statistics for naturalists. PWN WarszawaRabiej M., 2018, Statistical analyzes with Statistica and Excel. HelionRabiej M., 2012, Statistics with the Statistica program. HelionMeissner W., 2014, Statistical methods in biology. Subject practice guide. University of Gdańsk Publishing HouseGórecki T., 2011, Basics of statistics with examples in R, BTC Publishing, Legionowo;</td></tr><tr><td>Supplementary literature</td><td>Kala R., Statistics for naturalists. Ed. AR Poznań 2002Stanisz A., 2006, Accessible statistics course based on the STATISTICA PL program with examples from medicine (Volume I), StatSoftSobczyk M., 2003, Statistics. Theoretical foundations, examples - tasks, UMCS Publishing House, LublinKoronacki J., Mielniczuk J., 2018, Statistics for technical and natural sciences, PWN, WarsawKot S., Sokołowski A., Jakubowski J., 2011, Statistics, Ed. 2, PWN, Warsaw</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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