University of Gdańsk

Subject card

Subject name and code	Statistics for Oceanographers - lecture, PG_00205312		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study 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-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 statistics used in oceanography	[SW4] test/exam - oral or written
[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

Subject contents	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	
Prerequisites and co-requisites		
Assessment methods and criteria		

Subject passing criteria	Passing threshold	Percentage of the final grade
Grade from exam	51.0%	100.0%

Recommended reading	Basic literature	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;
	Supplementary literature	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
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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