



Mathematical statistics
Educational subject description sheet

Basic information

Field of study Animal husbandry	Education cycle 2022/23	
Speciality -	Subject code BD000000BZON.I2B.3068.22	
Organizational unit The Faculty of Biology and Animal Science	Lecture languages english	
Study level First-cycle (engineer) programme	Mandatory optional	
Study form Part-time	Block major subjects	
Education profile General academic	Disciplines Animal husbandry and fishery	
	Subject related to scientific research No	
	Subject shaping practical skills Nie	
Teacher responsible for the subject	Joanna Szyda	
Other teachers conducting classes	Joanna Szyda, Michalina Jakimowicz, Barbara Kosińska-Selbi	
Period Semester 2	Examination graded credit	Number of ECTS points 2.0
	Activities and hours lecture: 9 laboratory classes: 9	

Goals

C1	The student learns the basics of mathematical statistics and its practical application. In particular, the student learns how to perform statistical analysis of a data, hypotheses testing, statistical inference, modeling the relationship between variables. These skills allow for data analysis and proper interpretation of its results.
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Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	The graduate knows and understands the principles of conducting research in the natural sciences.	BH_P6S_WG12	written credit, oral credit, active participation, test
W2	The graduate knows and understands issues in the field of statistics.	BH_P6S_WG02	written credit, oral credit, active participation, test
Skills - Student can:			
U1	The graduate is able to use basic information technologies for processing information.	BH_P6S_UW04	written credit, oral credit, active participation, test

Balance of ECTS points

Activity form	Activity hours*	
lecture	9	
laboratory classes	9	
lesson preparation	3	
exam participation	2	
exam / credit preparation	25	
consultations	10	
Student workload	Hours 58	ECTS 2.0
Workload involving teacher	Hours 30	ECTS 1.0
Practical workload	Hours 9	ECTS 0.3

* hour means 45 minutes

Study content

No.	Course content	Activities
1.	1. Introductory lecture 2. Random variables 3. Populations and samples 4. Hypothesis testing and parameter estimation 5. Test 6. Chi-2 test 7. F test 8. Nonparametric tests 9. Summary of the material, analysis of examples, discussion 10. Correlation 11. Linear regression 12. Nonlinear regression 13. Determination of the quality of fit of the linear and non-linear regression equations 14. Analysis of variance 15. Summary of the material, analysis of examples, discussion	lecture

No.	Course content	Activities
2.	1. Introductory labs 2. Random variables 3. Populations and samples 4. Hypothesis testing and parameter estimation 5. Test 1 6. Test t 7. Chi-2 test 8. Test F 9. Test 2 10. Correlation 11. Linear regression 12. Nonlinear regression 13. Determination of the quality of fit of the linear and non-linear regression equations 14. Analysis of variance 15. Presentation of the project results, completion of exercises	laboratory classes

Course advanced

Teaching methods:

computer lab/laboratory, lecture, classes

Activities	Examination methods	Percentage in subject assessment
lecture	written credit, oral credit	50%
laboratory classes	active participation, test	50%

Literature

Obligatory

1. Hawkins, D. (2005) Biomeasurement. Understanding, analysing, and communicating data in the biosciences. Oxford University Press

Optional

1. Collett, D. (1991) Modelling Binary Data, Chapman and Hall
2. Draper, N.R., Smith, H. (1998) Applied Regression Analysis, Wiley
3. Ruxton and Colegrave (2003) Experimental design for the life sciences.

Kierunkowe efekty uczenia się

Kod	Treść
BH_P6S_UW04	The graduate is able to use basic information technologies in multimedia presentations and to obtain and process information in the field of animal science
BH_P6S_WG02	The graduate knows and understands issues in the field of chemistry, biochemistry, statistics, physics, biophysics and genetics
BH_P6S_WG12	The graduate knows and understands the principles of designing and conducting research in natural sciences