Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

		I	Faculty of F	ood Sciences	s and Fisheri	es			
Field of st	tudy	Aqu	aculture and Fish	eries					
Mode of study		stati	÷						
Graduate	's qualification	inży	nier	I		WNO	L1R		
Fields of s	science	agri	cultural sciences						
Discipline	es of science	anin	hal science and fi	sheries (100%)					
Education	nal profile	aene							
Module		gen				- I I			
Course ur	ait	Mat	omotice with h						
Course unit Matematics with basics of statistics									
Code		WNOZIR/AQF/S1/							
Field of sp	pecialisation								
Administe	ering faculty	Proc	ess Engineering a	and Human Nutritic	on				
ECTS		4.0 <i>ECTS (forms)</i> 4.0							
Form of c	ourse credit	examination		Language	english				
Electives				Elective group					
Form of ir	ostruction	Cod	Semester	Hours	ECTS	Weight	Credit		
locturing		~	1	20	2.0	0.50	credite		
lecture	course	A	1	30	2.0	0.50			
		VV	I	30	2.0	0.50	examination		
Leading to	eacher	Strz	elczak Agnieszka	(Agnieszka-Strzeld	zak@zut.edu.pl)				
Other tea	chers								
Prerequis	ites								
W-1	Basic knowledge of mathematics								
W-2	Basic knowledge of probability calculus								
Module/co	ourse unit objectiv	es							
C-1	Acquiring knowledge in basics of mathematics and statistics								
C-2	Practical use of ma	thema	atical and statistica	l concepts					
Course co	ontent divided into	vario	us forms of instru	uction			Number of hours		
T-A-1	Rational numbers, Geometrical representations, Irrational number, Real number represented as point on						4		
Derivative - its geometrical and physical interpretation. Sign of derivative-Monotonic increasing and de-									
T-A-2	findingapproximations	creasing functions. Relation between continuity and derivability. Differential - application in							
Т-А-3	Evaluation of definite integrals. Working knowledge of double integral. 4								
T-A-4	Basic statistic					2			
T-A-5	Probability						4		
T-A-6	Testing of normality of data distribution					2			
T-A-7	Parametric and non-parametric testing of hypotheses						4		
T-A-8	Pearson's correltion, Spearman's rank correlation						2		
T-A-9	Linear regression analysis 4								
1-W-1	Differential calculus 4								
1-W-2	Geometrical application of differential calculus 2								
T-W-3	Integral Calculus 4								
T-VV-4	Probability and theoretical distributions 4								
T-W-6	Testing of hypothesis								
T-W-7	Correlation and regression 4								
T-W-8	W-8 Statistical guality control 2								
Student	Student workload forms of activity								
	A.1 Classes attendance								
Δ_Δ_2	Literature study						50		
A-A-3	Consultation with lecturer 14								
	Consultation with lecturer 14								

Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

Faculty of Food Sciences and Fisheries

Student workload - forms of activity Number of hours 30 AW-2 Interactive learning leatures studies 30 AW-3 Preparation to an exam 30 AW-40 Interactive learning leatures studies 30 AW-40 Interactive learning learning leatures studies 50 Teaching methods / tools 50 M-1 Interactive additory classes 50 Studies methods / tools 50 Apr 1A , 006, W01 Besize methods Apr 1A, 006, W01 P65, W02 P65, W03 C1 TA 1												
A4W-2 Participation during lectures 30 A4W-2 Individual literature studies 5 A4W-3 Preparation to an exam 20 A4W-4 Development of knowledge 5 Teaching methods / tools 5 M-2 Interactive southory classes 5 Evaluation methods (F - progressive, P - final) 5 S-1 F Inter-term exams (2) S-2 P Exam Designed learning outcomes Methods and the statistical methods (F - progressive, P - final) 5 S-2 P Exam Statistica 6 Statistica Statistica 1 F Inter-term exams (2) 1 Statistica Statistica 1 Statistica Statistica Statistica Statistica 1 Statistica Statistica 1	Student workload - forms of activity Number of hours											
A4/4/2 Individual Interature studies 97 A4/4/2 Preparation to an exam 20 A4/4/2 Development of knowledge 3 Teaching methods/ tools 5 Teaching methods/ tools 5 Marcature lecture lecture lecture auditory classes 5 Valid Interacture soutions (2) 5 SS F Interacture lecture	A-W-1	Participation during lectures						30				
A-W-4 Preparation to an exam 20 A-W-4 Development of knowledge 5 Teaching methods / tools 5 M-1 Interactive lecture 5 M-2 Interactive auditory classes 5 Evaluation methods (fr - progressive, P - final) 5 S-2 P Inter-term exams (2) 5 S-2 P Inter-term exams (2) 5 S-2 P Inter-term exams (2) 5 S-2 P Exam Second and the progression of the p	A-W-2	Individual literature studies							5			
4.4.4.0 Image: Second S	A-W-3	Prepara	ation to	an exam								20
Teaching weise we	A-W-4	Develo	pment c	of knowledge								5
M-1 Interactive elutiony classes Veluation methods (r - progressive, P - final) S-2 P Exam S-2 P Exam Methods (r - progressive, P - final) Conservation of the progressive of the	Teaching m	nethod	s / tool	s								
M-2 Interactive auditory classes Evaluation methods (F - progressive, P - final) S-1 F Interactive acams (2) S-2 P Exam Designed learning outcomes Metroscie acams and statistical acams and statistical analyses on experimental data AOF_1A_WOI Reference is analyses on experimental data Course covered Instant Course covered Instant	M-1	Interac	tive lect	ure								
Evaluation methods (F - progressive, P - final) 5-1 F Inter-term exams (2) 5-2 P Exam Designed learning outcomes Representation engaged to referred to the state Internation (considering to call consistent) (considering to considering to call consistent) (considering to call con	М-2	Interac	tive aud	litory classes								
5.1 F Inter-term exams (2) S.2 P Exam Reference to the degree of	Evaluation	metho	ds (F -	progressive, P - final)								
5.2 P Exam besite to the total of the total of the total of the total of total	S-1	F	Inter-te	rm exams (2)								
Designed learning outcomes Reference to the learning outcomes stary which are starting starting outcomes Interaction learning outcomes starting outcomes Interaction learning outcomes starting outcomes Interaction learning outcomes Course orienter Testing learning outcomes Interaction learning outcomes AnoF_1A_B06_W01 Basics of advanced math and statistics AnoF_1A_W01 P65_WG P65_WG C-1 C-1 C-2 TA-3 TA-4 TA-4 TA-4 TA-4 TA-4 TA-4 TA-4 TA-4	5-2	Р	Exam									
Knowledge AQF_1A_B06_W01 Basics of advanced math and statistics AQF_1A_W01 P65_WG P65_WG C1 TA-5 T-W-2 TA-4 T-W-3 T-A-5 T-W-2 T-A-4 T-W-3 T-A-5 T-W-2 T-A-4 T-W-3 T-A-5 T-W-2 T-A-5		Designed learning outcomes			Reference to the learning outcomes designed for the fields of study	Reference to Learning Outcomes for qualifications at PQF 6, 7 or 8	Reference to learning outcomes for qualifications at level 6 or 7 that enable acquiring engineering competences	Course objectives	ves Course content		Teaching methods	Evaluation methods
AOF_1A_B06_W01 Basics of advanced math and statistics AQF_1A_W01 P6S_WG P6S_WG C1 C2 C1 C3 C3 C4 C3 C4 C5 C4 C5 C4 C5 C4 C5 C4 C5 C4 C5 C4 C5 C4 C5 C4 C5 C4 C5 C5 C4 C5 C5 C4 C5 C4 C5 C4 C5 C5 C4 C5 C5 C4 C5 C5 C5 C5 C5 C5 C5 C5 C5 C5 C5 C5 C5	Knowledge											
Skills AOF_1A_B06_U01 Ability to perform statistical analyses on experimental data AOF_1A_U02 AOF_1A_U22 P65_UW P65_UW P65_UW C-2 TA-3 TA-3 TA-4 TA-4 TA-4 M-1 M-2 TA-5 S-2 Social competence AOF_1A_B06_U01 ADF_1A_U22 AOF_1A_K01 AOF_1A_K0A<	AQF_1A_B06_W01 Basics of advanced math and statistics			AQF_1A_W01	P65_WG	P65_WG	C-1 C-2	T-A-1 T-A-2 T-A-3 T-A-4 T-A-5 T-A-6 T-A-7 T-A-8 T-A-9	T-W-1 T-W-2 T-W-3 T-W-4 T-W-5 T-W-6 T-W-7 T-W-8	M-1 M-2	S-1 S-2	
AOF 1A 806 U01 Ability to perform statistical analyses on experimental data AOF 1A U08 AOF 1A U02 AOF 1A U02 P65 UO P65 UW P65 UV C 2 TA-1 TA-3 TA-4 TA-5 TA-6 TA-5 TA-6 TA-7 TA-8 TA-8 TA-8 TA-8 TA-8 TA-8 TA-8 TA-8	Skills											
Social competence AOF_1A_B06_K01 TA_B 05_K1 AOF_1A_K01 AOF_1A_K01 P65_KK P65_KK P65_KK C-1 TA-2 T-W-1 M-1 S-1 Outcomes Grade Evaluation criterion C-2 T-A-5 T-W-3 M-1 S-1 Knowledge AOF_1A_K05 AOF_1A_K05 P65_KK P65_KK P65_KK N-1 S-1 AOF_1A_B06_W01 Grade Evaluation criterion K-2 T-A-5 T-W-5 N-1 S-1 AOF_1A_B06_W01 2.0 AOF_1A_B06_W01 A.0 A	AQF_1A_B06_U01 Ability to perform statistical analyses on experimental data				AQF_1A_U08 AQF_1A_U22	P6S_UO P6S_UW	P6S_UW	C-2	T-A-1 T-A-2 T-A-3 T-A-4 T-A-5 T-A-6 T-A-7 T-A-8 T-A-9	T-W-1 T-W-2 T-W-3 T-W-4 T-W-5 T-W-6 T-W-7 T-W-8	M-1 M-2	S-2
AQF_1A_B06_K01 Student is able to analyze results of statistical data AQF_1A_K01 AQF_1A_K04 AQF_1A_K05 P65_KK P65_KR C-1 T-A-1 T-A-3 T-W-1 T-W-2 T-A-4 M-1 S-1 Outcomes Grade Evaluation criterion C-2 T-A-5 T-A-6 T-A-6 T-W-7 T-W-7 T-A-7 T-W-7 T-A-8 M-1 S-1 Number of the statistical data Evaluation criterion T-A-6 T-A-8 T-W-7 T-A-7 T-A-7 T-A-7 T-W-7 T-A-8 T-W-7 T-A-8 T-M-7 T-A-7 T-A-8 T-W-7 T-A-8 T-M-7 T-A-8 T-A-8 T-M-7 T-A-8 T-A-9 	Social com	petenc	es									
OutcomesGradeEvaluation criterionKnowledgeAQF_1A_B06_W012,03,0Basic knowlegde of math and statistics3,54,04,04,55,05,0SkillsAQF_1A_B06_U012,03,0Ability to perform basic mathematical calculations and statistical analyses3,54,04,04,53,54,04,55,0	AQF_1A_B06_K01 Student is able to analyze results of statistical data				AQF_1A_K01 AQF_1A_K04 AQF_1A_K05	P65_KK P65_KR		C-1 C-2	T-A-1 T-A-2 T-A-3 T-A-4 T-A-5 T-A-6 T-A-7 T-A-8 T-A-9	T-W-1 T-W-2 T-W-3 T-W-4 T-W-5 T-W-5 T-W-6 T-W-7 T-W-8	M-1 M-2	S-1 S-2
Knowledge AQF_1A_B06_W01 2,0 3,0 Basic knowlegde of math and statistics 3,5	Outcom	ies	Grade		E	valuation cr	iterion					
AQF_1A_B06_W01 2,0 3,0 Basic knowlegde of math and statistics 3,5	Knowledge											
3,0 Basic knowlegde of math and statistics 3,5	AQF_1A_B06_V	W01	2,0									
3,5			3,0	Basic knowlegde of math and s	tatistics							
4,0			3,5									
Instruction Instruction 5,0 5,0 Skills AQF_1A_B06_U01 2,0 3,0 Ability to perform basic mathematical calculations and statistical analyses 3,5 4,0 4,5 5,0			4,0									
Skills AQF_1A_B06_U01 2,0 3,0 Ability to perform basic mathematical calculations and statistical analyses 3,5			5,0									
AQF_1A_B06_U01 2,0 3,0 Ability to perform basic mathematical calculations and statistical analyses 3,5 4,0 4,5 5,0	Skills											
3,0 Ability to perform basic mathematical calculations and statistical analyses 3,5	AQF_1A_B06_U	J01	2,0									
3,5 4,0 4,5 5,0			3,0	Ability to perform basic mathen	natical calculations a	and statistical ar	nalyses					
4,0 4,5 5,0			3,5									
5,0			4,0									
			5,0									

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Faculty of Food Sciences and Fisheries

Other social con	npetenc	es
AQF_1A_B06_K01	2,0	
	3,0	Basic ability to analyze mathematical and statistical calculations
	3,5	
	4,0	
	4,5	
	5,0	
Required reading	g	
1 Robert Nisbet I	ohn Elde	r IV. Gary Miner, Statistical analysis and data ining application, Elsevier, 2009

Supplementary reading

1. Tim Garry, Ibrahim Wazir, Mathematics Analysis and Approaches for the IB Diploma Standard Level, 2019