Crna Gora
UNIVERZITET CRNE GORE
PRIRODNO-MATEMATIČKI FAKULTET
Broj 2024/01-2371
Podgorica, 18.09. 2024 god.

UNIVERZITET CRNE GORE
810000 Podgorica, Cetinjski put 2
Vijeću Prirodno-Matematičkog fakulteta

MOLBA

Poštovani,

Molim vas da mi priznate ECTS kredite ostvarene preko ERASMUS+ programa kojeg sam odslušao tokom ljetnjeg semestra (master studija) studijske godine 2023/24 u Poljskoj na Univerzitetu u Szczecin-u na Institutu za Biologiju, i priznate kao dodaci diplomi.

Predmeti koje sam odslušao i položio sa najvišim ocjenama u su:

Ime predmeta	Ime nastavnika	Datum	Ocjena	ECTS krediti
Imunologija	Dr.hab Paulina Niedzwiedzka	11,06,2024	5.0	4
Bihejvoralna ekologija	Dariusz Wysocki	21,06,2024	5.0	1
Samo-pročišćavanje voda	Agnieska Szlauer-Lukaszewska	20,06,2024	5.0	3
Forenzička aerobiologija	Malgorzata Puc Prof. Agnieszka Grinn-Gofron	02,07,2024	5.0 -	2
Seminari, Istraživanje u cilju izrade master teze	Dr. Hab Paulina Niedzwiedzka	02,07,2024	5.0	10

Napomena:
na navedenom univerzitetu ocjena 5 je ekvivalentna nasoj ocjeni 10 tj. A.

Prilog: Original Ispitnog lista sa prevodom ovlašćenog sud. prevodioca.

Srdačno,

Petar Pajović

Pajović Petar br. Ind. 14/23
JMBG 2810997250027

UNIVERZITET U SZCZECIN-u
ODSJEK ZA MEĐUNARODNE ODNOSE
Al. Papieža Jana Pawla II 31, 70-453 Szczecin
telefon: (+48 91) 444 1058
mail: international@usz.edu.pl

ISPITNI LIST

Molim vas da ga ispunite sa velikim slovima

Ime i prezime studenta:

Ime predmeta	Ime nastavnika i potpis	Datum	Ocjena	Broj ECTS bodova
Imunologija	Dr. hab Paulina Niedźwiedzka	11.06.2024	5.0 (vrlo dobar)	4
Bihejvoralna ekologija	Dariusz Wysocki	21.06.2024	5.0	1
Samo-pročišćavanje voda	Agnieszka Szlauer-Lukaszewska	27.06.2024	5.0	3
Forenzička aerobiologija	Malgorzata Puc * 50% Prof. (Agieszka Grinn-Gofron) -	02.07.2024	5.0 -	2
Seminari, istraživanja u cilju izrade magistarske teze	Prof .Pauline Niedźwiedzka	02.07.2024	5.0	10

*Student je završio samo 50% ispita (predavanja su održala dva individualna predavača)

Potpis i pečat koordinatora fakulteta: Dr hab. Paulina Niedźwiedzka-Rystwej

Nakon što je ispitni list popunjen, student ga mora učitati u online aplikaciju.

UNIVERSITY OF SZCZECIN
INTERNATIONAL RELATIONS DEPARTMENT
Al. Papieża Jana Pawła II 31, 70-453 Szczecin
tel. (+48 91) 444 1058
mail: international@usz.edu.pl

EXAMINATION SHEET
PLEASE FILL WITH CAPITAL LETTERS

Student's Name and Surname:

Course title	Teacher's name and signature	Date	Grade	Number of ECTS points
IMMUNOLOGY	DR HAB. PAULINA [illegible] NIEDZWIEDZKA-RYSTWEJ	11.06. 2024	5.0 (very good)	4
Behavioural Ecology	dr hab. Damian Łysakowski	21.06. 2024	5,0	1
Self-purification of water	Agnieszka Szlauer-Łukaszewska Adiunkt	27.06. 2024	5,0	3
Forensic aerobiology*	Prof. Małgorzata Puc. 50% Prof. Agnieszka Grinn-Gofroń	2.07. 2024	5.0 —	2
Seminars Research work for Master thesis	Prof Pauline Niedzwiedzki-Rystwej	2.07. 2024	5.0	10

* student completed only 50% of the course (the lectures were provided by two individual lecturers)

Signature and stamp of the faculty coordinator:

UNIWERSYTET SZCZECIŃSKI
dr hab. Paulina Niedźwiedzka-Rystwej
prof. US

After the examination sheet has been filled in, the student has to upload it to their online application.

Erasmus+ Learning Agreement
Student Mobility for Studies
International Mobility

General information

Student	**Last name(s)**	**First name(s)**	**Date of birth**	**Nationality***	**Gender [Male/Female/Undefined]**
	Pajović	**Petar**	28/10/1997	ME	M
	ESI*, if applicable		**Study cycle***	**Field of education* (ISCED)**	**Field of education (clarification)**
	-		second	0511	Biology

Sending Institution	**Name**	**Faculty/Department**	**Erasmus code*/ City**	**Country**	**Administrative contact person name*; email; phone**
	University of Montenegro	Faculty of Natural Sciences and Mathematics	**Podgorica**	**Montenegro**	Jelena Pelević Pelevic.j@ucg.ac.me +382 20 414 293
Receiving Institution	**Name**	**Faculty/Department**	**Erasmus code*/ City**	**Country**	**Administrative contact person name*; email; phone**
	University of Szczecin	Faculty of Physical, Mathematical and Natural Sciences	**PLSzczeci 01**	**Poland**	Małgorzata Kopalska malgorzata.kopalska@usz.edu.pl +48 91 444 1208

The level of language competence* in English that the student already has or agrees to acquire by the start of the study period is:

A1 ☐ *A2* ☐ *B1* ☒ *B2* ☐ *C1* ☐ *C2* ☐ *Native speaker* ☐

After the mobility

Table D
Transcript of Records at the Receiving Institution (physical and virtual components, if applicable)
Start and end dates of the study period: from 29/02/2024 to 12/07/2024

Component code (if any)	Component title (as indicated in the course catalogue) or description of the study programme at the Receiving Institution	Was the component successfully completed by the student?	Number of ECTS credits (or equivalent)	Grades received at the Receiving Institution
USSPR-Mik-O-I-S-22/23Z	**Immunology**	Yes	4	5,0 / A
USSPR-GiBE-O-I-S-21/22Z	**Behavioural Ecology**	Yes	1	5,0 / A
USSPR-Biotech-O-I-S-21/22Z	**Self-purification of water**	Yes	3	5,0 / A
USSPR-BPK-O-II-S-23/24Z	**Forensic aerobiology (lab + lecture)**	No *(student took one of two exams)*	2	5,0 / A -
-	**Master thesis seminar (research)**		10	5,0 / A
			Total: 18	

Szczecin, Poland

Małgorzata Kopalska

Deputy Head
International Relations Dept.
University of Szczecin

Elektronicznie podpisany przez
Małgorzata Kopalska;
Uniwersytet Szczeciński
Data: 2024.07.26 09:12:25 +02'00'

Table E Transcript of Records and Recognition at the Sending Institution (physical and virtual components, if applicable)			
Component code (if any)	**Component title (as indicated in the course catalogue) catalogue) or description of the study programme at the Sending Institution**	**Number of ECTS credits (or equivalent) recognised**	**Grades received at the Receiving Institution**
		Total: …	

<table>
<tr><td colspan="4">*Subject*: Behavioural ecology</td></tr>
<tr><td colspan="4">*Field of study*: biology</td></tr>
<tr><td>*Form of classes*</td><td>*Class hours*</td><td>*ECTS*</td><td>*Language*</td></tr>
<tr><td>lectures</td><td>10</td><td rowspan="2">1</td><td rowspan="2">English</td></tr>
<tr><td></td><td></td></tr>
<tr><td>*Year/Semester*</td><td colspan="3">3/6</td></tr>
<tr><td>*Coordinator:*</td><td colspan="3">dr hab. Dariusz Wysocki, prof. US</td></tr>
<tr><td>*Objectives of the subject:*</td><td colspan="3">Mastering the knowledge of the latest advances in behavioral ecology</td></tr>
<tr><td>*Requirement:*</td><td colspan="3">Basics of ecology and zoology</td></tr>
<tr><td colspan="4">*Program content*</td></tr>
<tr><td colspan="4">1. Introduction to the biology of social vertebrates.
2. Biology of: *Aphelocoma californica, Turdoides squamiceps, Acrocephalus seschelensis, Melanerpes formicivorus, Parabuteo unicinctus, Aegithalos caudatus*
3. Biology of: meerkats, Primates, *Homo sapiens*</td></tr>
<tr><td>*Educational methods*</td><td colspan="3">• Presentation
• Groupwork
• Practical classes</td></tr>
<tr><td>*Form and conditions of passing the subject*</td><td colspan="3">Written exam</td></tr>
<tr><td>*Literature*</td><td colspan="3">• Krebs J.R., Davies N.B., West S.A. 2012. An Introduction to Behavioural Ecology. Wiley-Blackwell Chichester.
• F.B. Gill. 2007. Ornithology. Freeman</td></tr>
</table>

COURSE SYLLABUS AND SPECIFICATION

Curriculum title: **USSPR-BPK-O-II-S-23/24Z**		
Unit: **Blok wybieralny 1A**		
Course title: **Forensic aerobiology (aerobiologia sądowa) (KIERUNKOWE)**		Course code: **SPR92AIIJ3446_20S**
Name of field of study: **biologiczne podstawy kryminalistyki**		
Mode and cycle of study: **second degree, full - time**	Profile of study: **general academic**	Specialty:
Course / module status **elective**	Language of instruction: **semester: 2 - english language polish language**	

Year	Semester	Form of instruction	No. of hours	w tym e-learning	Type of credit	ECTS
1	2	laboratory	20	0	pg	2
		lecture	10	0	pg	
Total			**30**			**2**

Course / module coordinator	**dr hab. MAŁGORZATA PUC**
Course instructor	**dr hab. MAŁGORZATA PUC**
Course / module objectives	**Obtaining knowledge of bioaerosol composition, pollen morphology and phenomena influencing particle dispersion in the atmosphere. Acquainting with the practical significance of pollen and fungi spores in the judiciary (indication and differentiation of the nature of evidence in court proceedings). Acquisition:** **- the ability to recognize pollen grains and microscopic fungi spores,** **- the ability to make microscopic preparations,**
Prerequisites	**Basic program of biology for high school**

LEARNING OUTCOMES

Category	No.	Code	Description	Ref. to programme benchmarks
knowledge	1	EP1	Characterizes processes occurring in the air that influence pollen and spore dispersion in relation to pollination phenology and sporulation	K_W01
	2	EP2	Knows the structure of plant pollen and fungal disputes in the context of their use as evidence in court proceedings	K_W05
	3	EP3	Knows the sampling methodology for pollen and dispersal analyses in accordance with the procedures of microtrack analysis	K_W10
skills	1	EP4	Analyses correlations between phenological phenomenons, weather factors and pollen and spore occurence in the air over a given area	K_U04
	2	EP5	Microscopically recognizes selected pollen grains and fungal spores according to their morphological features	K_U05
	3	EP6	Applies methods of palynological analyses	K_U01
	4	EP7	Interprets literature data from a variety of sources (ex. in plant taxonomy)	K_U02
	5	EP8	Prepares conference reports for national and foreign conferences on the aerobiological issues	K_U13
	6	EP9	Presents the results of aeropalinological analyses in Polish or in a foreign language at scientific meetings	K_U15

social competences	1	EP10	**Demonstrates attention to the achievements and traditions of the profession**	**K_K05**

CONTENT	Semester	No. of hours	
			w tym e-learning
Subject title: **Forensic aerobiology (aerobiologia sądowa)**			
Format of instruction: **lecture**			
1. **History of forensic palynology and mycological analyzes in forensics. Morphology of pollen grains of taxa useful in forensics.**	2	2	0
2. **Pollen season and pollen calendar - determining the time and place of a crime based on presence of pollen grains on the surface of the tested objects. Meteorological, phenological and biogeographic factors, influencing the dispersion of pollen and spores in the atmosphere. Plant pollen as evidence material**	2	2	0
3. **Anamorphic fungal spores as evidence. Methodology of qualitative and quantitative assessment of pollen on the investigated objects**	2	2	0
4. **Morphological characteristics of selected spores, characteristics of fungal colonies**	2	2	0
5. **Use of aerobiological data in criminal and civil assault cases, burglary, forgery, homicide, rape, smuggling, drug trafficking and terrorism.**	2	2	0
Format of instruction: **laboratory**			
1. **Information on the rules of safe work at a laboratory stand. Microscopic preparation, permanent preparations with pollen and spores, staining, closing slides. Grain structure and recognition of plant pollen and fungal spores on microscopic slides.**	2	4	0
2. **Air sampling by volumetric and gravimetric method. Pollen and spores content analysis in the air. Seasonal dynamics. Structure and recognition of pollen grains and spores of fungi on microscopic slides**	2	4	0
3. **Analysis of exemplary cases (historical lawsuits, recreating conditions of crimes based on pollen material). Characteristics of the indoor environment. Analysis of the content of spores and pollen in the indoor environment. Construction and recognition of plant pollen grains and fungal spores on microscopic slides**	2	4	0
4. **Data analysis, descriptive statistics, correlation, multiple regression. Forecasting the beginning of pollen seasons. Development and analysis of pollen and spore calendars**	2	4	0
5. **Statistical prognostic models: artificial neural networks (ANN); multi-regressive neural tree (MRT).**	2	4	0

Modes of delivery	**- preparation of a project / essay, - microscopy and palynological preparation; - multimedia presentation**	
Assessment methods		No. of learning outcome from the syllabus
	PRACA PISEMNA/ ESEJ/ RECENZJA	**EP1,EP2,EP3,EP6**
	PREZENTACJA	**EP1,EP10,EP2,EP3, EP7,EP8,EP9**
	ZAJĘCIA PRAKTYCZNE (WERYFIKACJA POPRZEZ OBSERWACJĘ)	**EP10,EP4,EP5,EP7**
	Metody i formy weryfikacji efektów uczenia się mogą zostać zmienione dla studentów ze szczególnymi potrzebami na warunkach i zasadach określonych w Regulaminie Studiów Uniwersytetu Szczecińskiego.	
Grading criteria	**ASSESSMENT for lectures - preparation of a project / essay based on the issues carried out during the lectures; ASSESSMENT FOR laboratories - partial written test, oral test - recognition of fungal spores and plant pollen under the microscope;**	
	Grade calculation principles	
	final grade from the exercises and grade from the written test / essay covering the content of the lecture in relation to practical exam in laboratories (sporomorph recognition) 1: 1	

Final grade calculation method	Sem.	Course	Type of credit	Grade calc. method	Weight for the average
	2	Forensic aerobiology (aerobiologia sądowa)		Arytmetyczna	
	2	Forensic aerobiology (aerobiologia sądowa) [wykład]	zaliczenie z oceną		
	2	Forensic aerobiology (aerobiologia sądowa) [laboratorium]	zaliczenie z oceną		

Basic reading	Burnett H., L. (1998): Illustrated Genera of Imperfecta Fungi, ISBN: 978-0-89054-192-0, USA
	Dybowa-Jachowicz S., Sadowska A. (red) (2003): Palinologia, PAN, Kraków
	George B. (2003): Illustrated Genera of Rust Fungi, Third Edition, ISBN: 978-0-89054-304-7, USA
	Weryszko-Chmielewska E. (red.) (2007): Aerobiologia, Wyd. Akademii Rolniczej, Lublin
Supplementary reading	autorzy artykułów (2019): International Journal of Criminal Investigation, AiT Labolatories, USA
	Mildenhall, D. C. Wiltshire, P. E. J. Bryant. V. M. (2006): Forensic palynology - Why do it and how it works, For Sci Int. 163, UK

STUDENT WORKLOAD

	No. of hours	
		W tym e-learning
Contact hours	**30**	**0**
Participation in test / exam	**2**	**0**
Preparation for contact hours	**3**	**0**
Private reading and studying	**2**	**0**
Participation in tutorials	**5**	**0**
Preparation of project / essay / etc.	**3**	**0**
Preparation for test / exam	**5**	**0**
TOTAL workload	**50**	
ECTS credits	**2**	

COURSE SYLLABUS AND SPECIFICATION

Curriculum title: **USSPR-Mik-O-I-S-22/23Z**						
Course title: **Immunology (immunologia) (KIERUNKOWE)**					Course code: **US93AIJ2614_29S**	
Name of field of study: **microbiology (mikrobiologia)**						
Mode and cycle of study: **first-degree, full - time**		Profile of study: **general academic**			Specialty:	
Course / module status **obligatory**			Language of instruction: **semester: 4 - English language**			
Year	**Semester**	**Form of instruction**	**No. of hours**		**Type of credit**	**ECTS**
				w tym e-learning		
2	4	laboratory	30	0	pg	4
		lecture	30	0	e	
Total			**60**			**4**
Course / module coordinator	**dr hab. PAULINA NIEDŹWIEDZKA-RYSTWEJ**					
Course instructor	**dr hab. PAULINA NIEDŹWIEDZKA-RYSTWEJ**					
Course / module objectives	**Familiarization with the defense mechanisms of a macroorganism after contact with bacteria, viruses or fungi. Explanation of immunity reactions, including allergic reactions as well as those leading to immune diseases**					
Prerequisites	**Knowledge of the structure and pathogenic action of microorganisms (after a course in Bacteriology and in the subject Virology**					

LEARNING OUTCOMES

Category	**No.**	**Code**	**Description**	Ref. to programme benchmarks
knowledge	**1**	**EP1**	**The student characterizes the structure of the system immune system in mammals, including human**	**K_W01 K_W02 K_W05**
	2	**EP2**	**The student explains the mechanism of immune system cells.**	**K_W01 K_W05**
skills	**1**	**EP3**	**The student makes observations and characterizes the cells of the system immunity under the microscope**	**K_U02 K_U04**
	2	**EP4**	**The student analyzes the basics immune mechanisms and selects methods to detect the chosen immunity mechanism**	**K_U03 K_U04 K_U05**
	3	**EP5**	**The student interprets the results sample immunoassays**	**K_U04 K_U06 K_U07 K_U09**
	4	**EP6**	**The student analyzes the literature in the field issues discussed in the course**	**K_U06 K_U08 K_U11 K_U16**
	5	**EP11**	**The student is able to work independently and in the group**	**K_U17**
	1	**EP8**	**The student is critical in assessing his own and others' work**	**K_K01 K_K07**

social competences	**2**	**EP10**	**The student complies with the arrangements**	**K_K01 K_K05**
	3	**EP12**	**The student is ready to comply with the rules of professional ethics and to demand it from others**	**K_K08**

CONTENT	Semester	No. of hours	
			w tym e-learning
Subject title: **immunologia**			
Format of instruction: **lecture**			
1. Structure and function of organs and cells of the immune system (UO). The microbiome and the UO.	4	10	0
2. Mechanisms of specific and non-specific immunity (innate and acquired immunity)	4	14	0
3. Antigen pathway in UO and allergic reactions. Autoimmunity and immune diseases	4	6	0
Format of instruction: **laboratory**			
1. Blood cells as cells of the immune system in a microscopic image	4	6	0
2. Determination of specific and non-specific (innate and acquired) immunity by selected methods.	4	14	0
3. Serological reactions in immunological diagnosis. Monoclonal antibodies	4	6	0
4. Molecular biology tests in immunology	4	4	0

Modes of delivery	**Laboratories - practical classes, Lecture - multimedia presentation**	
Assessment methods		No. of learning outcome from the syllabus
	WRITTEN EXAM	**EP1,EP2**
	KOLOKWIUM	**EP1,EP2**
	TEST	**EP1,EP2,EP5,EP8**
	PRACTICAL CLASSES	**EP10,EP11,EP12,EP3,EP4,EP5,EP6,EP8**
Grading criteria	**Written exam (longer written statement) covering knowledge from lectures. Determining the final grade on the basis of partial grades received during the semester for specific activities and student work during classes**	
	Grade calculation principles	
	The final grade is calculated on the basis of the grade from the exam and the exercises in a ratio of 2:1.	

Final grade calculation method	Sem.	Course	Type of credit	Grade calc. method	Weight for the average
	4	immunologia		Ważona	
	4	immunologia [wykład]	egzamin		0,67
	4	immunologia [laboratorium]	zaliczenie z oceną		0,33

Basic reading	Buczek J., Deptuła W., Gliński Z., Jarosz J., Stosik M., Wernicki A. (2000): Immunologia porównawcza i rozwojowa zwierząt, , Wydawnictwo Naukowe PWN, , Warszawa
	Deptuła W., Tokarz-Deptuła B., Pisarski R. (2014): Immunologia - fakty znane i nieznane, , Wyd. PWSZ. , , D Legnica
	Deptuła W., Tokarz-Deptuła B., Stosik M., (2009): Immunologia dla biologów - wydanie nowe, Immunologia dla biologów - wydanie nowe., Wyd. US, Szczecin, Szczecin
	Gołab J., Jakóbisiak M., Lasek W., Stokłosa T. (2017): Immunologia., , Wydawnictwo naukowe PWN, , Warszawa
	Nicklin J., Graeme-Cook K., Paget T., Killington R. (2000): Krótkie wykłady -mikrobiologia., Wydawnictwo Naukowe PWN , Warszawa
	Płytycz B., Gliński Z., Jarosz J., Książkiewicz-Kapralska M., Markowska M., Skwarło-Sońta K. (1999): Immunologia porównawcza, , Wyd. UJ. , Kraków
Supplementary reading	Czasopisma: Alergia, Astma, Immunologia Kosmos Postępy Biochemii Postępy Biologii Komórki Postępy Higieny i Medycyny Doświadczalnej Postępy mikrobiologii Wszechświat

STUDENT WORKLOAD

	No. of hours	W tym e-learning
Contact hours	**60**	**0**
Participation in test / exam	**4**	**0**

Preparation for contact hours	**10**	**0**
Private reading and studying	**15**	**0**
Participation in tutorials	**4**	**0**
Preparation of project / essay / etc.	**0**	**0**
Preparation for test / exam	**7**	**0**
TOTAL workload	**100**	
ECTS credits	**4**	

COURSESYLLABUS AND SPECIFICATION

Curriculum title: **USSPR-Biotech-O-I-S-21/22Z**	
Unit: **Moduł V A [moduł]**	
Course title: **self-purification of water (KIERUNKOWE)**	Course code: **US34AIJ2457_56S**
Name of field of study: **biotechnologia**	
Mode and cycle of study: **first-degree, full - time**	Profile of study: **general academic** / Specialty:
Course / module status **elective**	Language of instruction: **semester: 6 - english language**

Year	Semester	Form of instruction	No. of hours	w tym e-learning	Type of credit	ECTS
3	6	laboratory	15	0	pg	3
		lecture	15	0	pg	
Total			**30**			**3**

Course / module coordinator	**dr hab. inż. AGNIESZKA SZLAUER-ŁUKASZEWSKA**
Course instructor	**dr hab. inż. AGNIESZKA SZLAUER-ŁUKASZEWSKA**
Course / module objectives	**Understanding the mechanisms of contamination of aquatic ecosystems, the influence of elements of water biocenosis on the status of the aquatic environment, knowledge of hydrochemical and hydrological processes which are important for buffering the pollution and improve the chemical and physical properties of water. Knowledge of methods to assess the degree of contamination and susceptibility for degradation of water bodies with understanding the social aspects of the practical application of this knowledge. Ability to properly identify taxa that are indicators of pollution.**
Prerequisites	**general and organic chemistry, physics, biochemistry, microbiology**

LEARNING OUTCOMES

Category	No.	Code	Description	Ref. to programme benchmarks
knowledge	1	EP1	Student recognizes the risks associated with pollution of the water	K_W01 K_W02 K_W06 K_W07
	2	EP2	Student knows the methods to assess the degree of contamination and susceptibility to degradation of surface water	K_W01 K_W02 K_W03
	3	EP3	Student describes the basic mechanisms of self-purification process	K_W01 K_W03
skills	1	EP4	Student evaluates the degree of pollution of surface waters and their susceptibility to degradation	K_U01 K_U02 K_U03
	2	EP5	Student analyzes empirically obtained data of physical and chemical parameters of water as a result of various biological factors, and draws conclusions based on them	K_U01 K_U02 K_U04
	3	EP6	Student is able to classify aquatics organisms to specific ecological formation and identify selected indicator species.	K_U01 K_U02 K_U03
social competences	1	EP8	The student shows an attitude of readiness to the assigned task.	K_K05
	2	EP9	Student understands the social aspects of the practical application of knowledge and skills.	K_K01 K_K02

CONTENT	Semester	No. of hours	w tym e-learning
Subject title: **self-purification of water**			
Format of instruction: **lecture**			
1. **Mechanisms of self-purification**	6	2	0
2. **Water as a living environment**	6	1	0
3. **Surface water pollution**	6	4	0
4. **Saprobic zones**	6	2	0
5. **The importance of interactions between organisms in the self-purification process**	6	1	0
6. **Waterbodies susceptibility to degradation**	6	1	0
7. **Bioindication**	6	1	0
8. **Protection, monitoring, reservoir reclamation**	6	3	0
Format of instruction: **laboratory**			
1. **Characterization of surface water contamination and related groups of organisms.**	6	4	0
2. **Bioindication of the degree of pollution based on existing organisms**	6	2	0
3. **Laboratory experiments using various ecological formations for water treatment**	6	6	0
4. **Representatives of food guilds, their role in the processes of self-purification of water and the circulation of nutrients**	6	3	0

Modes of delivery	**Multimedia presentation based on the author's lecture scenario, Carry out a biological experiment in in the laboratory, Practical exercises in the biological laboratory, microscopic observations, execution drawings, Oral discussion of the scope of the conducted exercises / presentation with a discussion**	
Assessment methods		No. of learning outcome from the syllabus
	KOLOKWIUM	**EP1,EP2,EP3,EP4,EP5,EP6,EP9**
	ZAJĘCIA PRAKTYCZNE (WERYFIKACJA POPRZEZ OBSERWACJĘ)	**EP6,EP8**
	Metody i formy weryfikacji efektów uczenia się mogą zostać zmienione dla studentów ze szczególnymi potrzebami na warunkach i zasadach określonych w Regulaminie Studiów Uniwersytetu Szczecińskiego.	
Grading criteria	**Presence and activity on exercises. Performing practical tasks entrusted during the exercises Passing the colloquium with the content discussed during the lecture**	
	Grade calculation principles	
	Establishing a final grade based on partial marks received during the semester for specific student activities and work. The grade is calculated on the basis of the final grade of the exercises and lectures in the ratio 1: 1	

Final grade calculation method	Sem.	Course	Type of credit	Grade calc. method	Weight for the average
	6	self-purification of water		Arytmetyczna	
	6	self-purification of water [wykład]	zaliczenie z oceną		
	6	self-purification of water [laboratorium]	zaliczenie z oceną		

Basic reading	Chełmicki W. (2002): Woda. Zasoby, degradacja, ochrona, PWN, Warszawa
	Turoboyski L. (1979): Hydrobiologia techniczna, PWN, Warszawa
Supplementary reading	Allan J. D. (1998): Ekologia wód płynących, PWN, Warszawa
	Dojlido J. R. (1995): Chemia wód powierzchniowych, Wyd. Ekonomia i Środowisko, Białystok
	Kajak Z. (1998): Hydrobiologia i limnologia. Ekosystemy wód śródlądowych, PWN, Warszawa
	Lampert W. Sommer U. (1996): Ekologia wód śródlądowych, PWN, Warszawa

STUDENT WORKLOAD		
	No. of hours	
		W tym e-learning
Contact hours	**30**	**0**
Participation in test / exam	**2**	**0**
Preparation for contact hours	**5**	**0**
Private reading and studying	**10**	**0**
Participation in tutorials	**6**	**0**
Preparation of project / essay / etc.	**0**	**0**
Preparation for test / exam	**22**	**0**
TOTAL workload	**75**	
ECTS credits	**3**	