

DESCRIPTION OF THE COURSE OF STUDY

Course code	0521.2.OŚ1.B/C9.MIK	
Name of the course in	Polish	Mikrobiologia
	English	Microbiology

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Environmental Protection
1.2. Mode of study	full-time studies, studies extramural
1.3. Level of study	Bachelor's Degree
1.4. Profile of study*	General academic
1.5. Person/s preparing the course description	Łukasz Lechowicz, PhD
1.6. Contact	llechowicz@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	English
2.2. Prerequisites*	Basic knowledge of biology, including genetics and chemistry

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lecture, laboratory	
3.2. Place of classes	Classes in classrooms at the Jan Kochanowski University	
3.3. Form of assessment	Graduated with a grade	
3.4. Teaching methods	Lecture, laboratories, independent experiments, observation	
3.5. Bibliography	Required reading	Richard G. Burns, Environmental microbiology: A laboratory manual, ISBN: 0-12-550656-2 B.K. Khuntia, Basic Microbiology, ISBN: 8170359635
	Further reading	Murray, P: Medical Microbiology, ISBN-13 : 978-0323299565

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

<p>4.1. Course objectives (including form of classes) C1. Ability to use the basic techniques used in microbiology C2. Identification of basic microbiological indicators in environmental monitoring C3. Isolation of microorganisms from various environments</p>
<p>4.2. Detailed syllabus (including form of classes) Lecture 1. Characteristics of microorganisms, bacteria and environmental factors, bacteria in natural environments, microorganisms in environmental protection - in water and soil purification, metal leaching, molecular methods of microbiological analysis of environments. Exercises 1. Health and safety regulations in force in the microbiological laboratory. Methods of sterilization and disinfection. Microbiological media, 2. Techniques of microbiological cultures, methods of microbial culture and counting, 3. Staining of bacteria, 4. Effect of physical factors on bacteria. 5. Microbiological analysis of air, 6. Microbiological analysis of water, 7. Determination of antimicrobial susceptibility of bacteria</p>

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	Student can name and use basic laboratory equipment in a microbiological laboratory	OŚ1A-W07
W02	Student knows and uses the terms in the field of microbiology	OŚ1A-W02
W03	Student knows the importance of microorganisms for environmental protection	OŚ1A-W01
within the scope of ABILITIES:		
U01	Student independently prepare microbiological substrates and carry out the cultivation of microorganisms	OŚ1A-U01

U02	Student designs the course of experimental work in order to determine the number or diversity of microorganisms isolated from the environment	OS1A-U02
U03	Student develops the results of the conducted microbiological analyzes	OS1A-U06
within the scope of SOCIAL COMPETENCE:		
K01	Student is aware of the biodiversity and relationships taking place in the world of microorganisms	OS1A-K01

4.4. Methods of assessment of the intended learning outcomes																								
Teaching outcomes (code)	Method of assessment (+/-)																							
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning					
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes					
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...
W01	+																							
W02	+																							
W03	+																							
U01																								
U02																								
U03																								
K01																								

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes		
Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	Obtaining from 55% to 64% of the total number of points possible on the final test
	3,5	Obtaining from 65% to 74% of the total number of points possible on the final test
	4	Obtaining from 75% to 84% of the total number of points possible on the final test
	4,5	Obtaining from 85% to 94% of the total number of points possible on the final test
	5	Obtaining from 95% to 100% of the total number of points possible on the final test
classes (C)* (including e-learning)	3	Obtaining from 55% to 64% of the total number of points possible on the final test
	3,5	Obtaining from 65% to 74% of the total number of points possible on the final test
	4	Obtaining from 75% to 84% of the total number of points possible on the final test
	4,5	Obtaining from 85% to 94% of the total number of points possible on the final test
	5	Obtaining from 95% to 100% of the total number of points possible on the final test
others (...)* (including e-learning)	3	
	3,5	
	4	
	4,5	
	5	

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	45	
Participation in lectures*	15	
Participation in classes, seminars, laboratories*	30	
Preparation in the exam/ final test*		
Others (please specify e.g. e-learning)*		
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	30	
Preparation for the lecture*	5	
Preparation for the classes, seminars, laboratories*	25	
Preparation for the exam/test*	5	

<i>Gathering materials for the project/Internet query*</i>		
<i>Preparation of multimedia presentation</i>		
<i>Others *</i>		
TOTAL NUMBER OF HOURS	75	
ECTS credits for the course of study	3	

**delete as appropriate*

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)

.....