Attachment No. 5 to Rector's ordinance No. 22/2020

DESCRIPTION OF THE COURSE OF STUDY

Course code	**0521.2.OŚ1.B/C8.GIG**	
Name of the course in	Polish	***Genetyka i inżynieria genetyczna***
	English	***Genetics and genetic engineering***

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/extramural
1.3. Level of study	Bachelor degree
1.4. Profile of study*	general academic
1.5. Person/s preparing the course description	Dr hab. Artur Kowalik
1.6. Contact	artur.kowalik@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	**polish**
2.2. Prerequisites*	**none**

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes		e.g. lectures, classes, (including e-learning)
3.2. Place of classes		**Classes in the teaching facilities of UJK**
3.3. Form of assessment		**Test**
3.4. Teaching methods		**Lecture and discussions**
3.5. Bibliography	**Required reading**	1. Terence A. Brown Genomy, 2019 wyd. 3, PWN 2. Węgleński P., 2006 Genetyka molekularna, PWN, Warszawa. 3. Winter P. C., Hickey G. I., Fletcher H. L., 2011 Genetyka. Krótkie wykłady, PWN, Warszawa.
	Further reading	1 Bal J., 2007: Biologia molekularna w medycynie. Elementy genetyki klinicznej, PWN, Warszawa. 2. PubMed

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives ***(including form of classes)***

C1- Basics of molecular biology and the flow of genetic information.
C2- Importance of genetic engineering for environmental protection.
C3- Ability to use basic techniques used in genetics and genetic engineering.
C4- Learning about the structure and function of the genetic material of organisms
C5- Application of genetic engineering in environmental protection

4.2. Detailed syllabus ***(including form of classes)***

1 Lecture:
History of genetics and genetic engineering. Genetic material - structure and function in cells, mechanisms of genetic expression. The application of genetic engineering in environmental protection
Modern techniques used in genetics and genetic engineering

2 Exercises:
Basic techniques used in genetics and genetic engineering, Isolation of DNA by example of prokaryotic organisms, Duplication and identification of selected DNA fragment by PCR. Electrophoretic separation and visualization of DNA, Genetic expression.

4.3 Intended learning outcomes

Code	**A student, who passed the course**	**Relation to learning outcomes**
within the scope of **KNOWLEDGE:**		
W01	Describes the structure and function of genetic material in cells	OŚ1A-W01

W02	Defines basic concepts in genetics and genetic engineering	OŚ1A-W02
W03	Explains the methods of genetic engineering	OŚ1A-W03
within the scope of **ABILITIES:**		
U01	Knows the purpose of using basic genetic engineering techniques	OŚ1A-U01
U02	Designs a workflow of experimental work to isolate and identify genetic material	OŚ1A-U02
U03	Prepares the results of the analyses performed	OŚ1A-U03
within the scope of **SOCIAL COMPETENCE:**		
K01	Is aware of the impact of the structure and function of genetic material on the living organism	OŚ1A_K01
K02	Is proactive in discussing current issues in genetic engineering	OŚ1A_K01
K03	Is sensitive to the importance that genetic engineering plays in environmental protection	OŚ1A_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*	*...*
W01	+	+		-	+					-	+		-	+		-	+				
W02	+	+		-	+					-	+		-	+		-	+				
W03	+	+		-	+					-	+		-	+		-	+				
U01	+	+		-	+					-	+		-	+		-	+				
U02	+	+		-	+					-	+		-	+		-	+				
U03	+	+		-	+					-	+		-	+		-	+				
K01	-	-		-	-					-	+		-	+		-	+				
K02	-	-		-	-					-	+		-	+		-	+				
K03	-	-		-	-					-	+		-	+		-	+				

****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 51-65% of the total number of points possible to obtain
	3,5	Obtaining 66-75% of the total number of points possible to obtain
	4	Obtaining 76-85% of the total number of points possible to obtain
	4,5	Obtaining 86-95% of the total number of points possible to obtain
	5	Obtaining 96-100% of the total number of points possible to obtain
classes (C)* (including e-learning)	**3**	Obtaining 51-65% of the total number of points possible to obtain
	3,5	Obtaining 66-75% of the total number of points possible to obtain
	4	Obtaining 76-85% of the total number of points possible to obtain
	4,5	Obtaining 86-95% of the total number of points possible to obtain
	5	Obtaining 96-100% of the total number of points possible to obtain

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/	***30***	***30***
*Participation in lectures**	15	15
*Participation in classes, seminars, laboratories**	15	15

*Preparation in the exam/ final test**		
*Others (please specify e.g. e-learning)**		
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	***20***	***20***
*Preparation for the lecture**		
*Preparation for the classes, seminars, laboratories**	12	12
*Preparation for the exam/test**	8	8
*Gathering materials for the project/Internet query**		
Preparation of multimedia presentation		
*Others **		
TOTAL NUMBER OF HOURS	***50***	***50***
ECTS credits for the course of study	**2**	**2**

delete as appropriate

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

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