

**Subject card**

<b>Subject name and code</b>	Genetic engineering and introduction to synthetic biology, PG_00053203						
<b>Field of study</b>	Genetics and Experimental Biology						
<b>Date of commencement of studies</b>	October 2022	<b>Academic year of realisation of subject</b>			2024/2025		
<b>Education level</b>	undergraduate studies	<b>Subject group</b>					
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	3	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	5	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>					
<b>Conducting unit</b>							
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Marcin Łoś				
	<b>Teachers</b>		dr hab. Marcin Łoś dr Dariusz Nowicki				
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	30		0.0		0.0	30
<b>Subject objectives</b>	Learning of practical skills in planning of genetic constructs						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GBEL3_W04] knowledge applied to microbial and plant biotechnology	Knowledge of genetic engineering techniques and basis of synthetic biology	[SW2] presentation/project/paper/report
	[GBEL3_W05] principles for planning research based on the achievements of biological sciences and related disciplines and the possibility of putting their results into practice, principles for the operation of equipment and apparatus used in molecular genetics research, and the principle of interpreting biological phenomena and processes based on empirical data in research work and practical action, taking into account the sustainable use of biodiversity	Theoretical basis to plan basic cloning	[SW2] presentation/project/paper/report
	[GBEL3_W06] the development and current state of knowledge and the latest trends in molecular genetics and related fields; indicates their relationship to other disciplines in the life sciences or medical sciences and their potential for use in practice	Understanding of the connection between natural biological processes and genetic engineering methods	[SW2] presentation/project/paper/report
	[GBEL3_U01] independently perform practical tasks in the biological and related sciences, formulate research problems, analyse their results and draw conclusions.	Ability to plan basic cloning procedures	[SU2] presentation/project/paper/report
	[GBEL3_U02] use computer programmes for analysis and calculation, and use databases and bioinformatics tools to solve biological problems	Ability to plan cloning with minimal support of dedicated software	[SU2] presentation/project/paper/report
	[GBEL3_U03] use research apparatus and tools and, following the correct sequence of operations, carry out simple physical, biological or chemical observations and measurements in laboratory work in the biological sciences	Theoretical basis of use of essential equipment	[SU2] presentation/project/paper/report
	[GBEL3_K01] use of theoretical knowledge in laboratory and production practice	Ability to plan the solution on the basis of genetic engineering methods	[SK2] presentation/project/paper/report
	[GBEL3_K02] critically evaluate their own knowledge and methods in molecular biology and related fields and commercialise their research.	Ability to adjust methodology to solve the problem	[SK2] presentation/project/paper/report
[GBEL3_K04] application of the principle of bioethics	Knowledge about multiple ethical aspects connected with use of genetic engineering	[SK2] presentation/project/paper/report	
Subject contents	Planning of molecular cloning		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Projects	50.0%	100.0%
Recommended reading	Basic literature	brak	
	Supplementary literature	brak	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/example questions/tasks being completed	Planning of cloning of fusion protein		
Work placement	Not applicable		

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