

**Subject card**

<b>Subject name and code</b>	Introduction to experimental medicine, PG_00153643						
<b>Field of study</b>	Biotechnology						
<b>Date of commencement of studies</b>	October 2024	<b>Academic year of realisation of subject</b>			2025/2026		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Optional subject group		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			English		
<b>Semester of study</b>	3	<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>	Subject supervisor		dr hab. Aleksandra Markiewicz				
	Teachers						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	0.0	30.0	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
	Number of study hours	30		5.0		15.0	50
<b>Subject objectives</b>	<p>The aim of the course is to familiarize students with the research approach in the analysis and validation of molecular markers potentially useful in clinical practice.</p> <p>During classes, the student will:</p> <ul style="list-style-type: none"> <li>- demonstrate knowledge of research models used to characterize biological and clinical significance of a molecular marker, terminology and conceptual apparatus for molecular diagnostics, precision medicine</li> <li>- acquire competences enabling planning of a research path aimed at demonstrating the biological significance and clinical utility of a molecular marker in precision medicine.</li> </ul>						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>		<b>Method of verification</b>		
	[BIOTECHMU2_W01] The graduate knows and understands complex biological phenomena at the molecular level, their importance for biotechnology		The student understands the relationship between the disturbance of the level of a molecular marker and the possibility of using this fact, e.g. to detect diseases and monitoring their course.		[SW4] test/exam - oral or written		
	[BIOTECHMU2_W03] The graduate knows and understands general concepts of therapy and diagnostic methods of human diseases, including the mechanisms of action of selected drugs, immunotherapy and gene therapy		The student understands the relationship between the disorder of a given type of molecular marker and the possibilities of using it e.g. in targeted therapy or as a prognostic and predictive marker. Is able to design an experiment aimed at validating the usefulness of a molecular marker		[SW2] presentation/project/paper/report		

Subject contents	<p>1. Types of molecular markers.2. Research tools for the analysis of cells, RNA, DNA and protein.3. Preparation of samples for analysis.4. Methodology of working with clinical material.5. Research using in vitro tests.6. Research using animal models.7. Clinical trials.8. Assessment of the usefulness of molecular markers in medicine.9. Analysis of molecular test results.10. Statistical analysis.11. Molecular marker in medicine - the path from the laboratory to the patient.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final exam - test and open questions	51.0%	80.0%
	Presentation of a research task by the student	51.0%	20.0%
Recommended reading	Basic literature	<p>Biologia molekularna w medycynie; Jerzy BałBiomarker Tests for Molecularly Targeted Therapies: Key to Unlocking Precision Medicine; Graig LA, Phillips JK, Moses HL,</p>	
	Supplementary literature	<p>Preclinical mouse solid tumour models: status quo, challenges and perspectives doi:10.1038/nrc.2017.92</p>	
	eResources addresses	<p>Adresy na platformie eNauczanie:</p>	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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