



UR an international PhD student

COURSE SYLLABUS – DOCTORAL SCHOOL EDUCATION CYCLE FROM 2025/2026 TO 2028/2029

GENERAL INFORMATION ABOUT THE SUBJECT				
Subject title		WORKSHOPS WITH AN EXPERT		
Name of the unit offering the subject		Doctoral School at the University of Rzeszów		
Type of subject (<i>compulsory, optional</i>)		compulsory		
Year/semester		Year I, Semester I		
Discipline		Biotechnology		
Language of instruction		English		
Name and surname of the course coordinator		Raluca Maria Fratila, PhD		
Name and surname of the person(s) teaching the subject		Raluca Maria Fratila, PhD		
Prerequisites		Research activity related to scientific interests in the field of multifunctional synthesis of modified materials for biomedical applications based on bioproducts, systematic laboratory work.		
COURSE SUMMARY				
(synthetic description of the content and objectives of the course; 100-200 words)				
The course Workshops with an expert is designed to enable young scientists from the Doctoral School to establish contacts and research cooperation with experienced specialists in the field of scientific interests, distinguished by significant scientific achievements. The course serves to exchange scientific ideas, focus on the selection of research methods and tools, and discuss planned scientific research, which is the basis for achieving the right research results that will provide material for writing scientific articles related to a doctoral dissertation in the field of biotechnology. It also familiarizes students with strategies for solving methodological problems related to the study of nanomaterials used for tissue regeneration, including wound healing.				
LEARNING OUTCOMES FOR THE COURSE AND VERIFICATION METHODS				
Learning outcome symbol	Expected learning outcomes	Reference to learning outcomes for level 8 PRK qualifications (symbol)	Form of teaching (lectures, practical classes, etc.)	Assessment methods (e.g. test, oral examination, written examination, project, etc.)
Knowledge No.	knows and understands, has knowledge of:			
P8S-WG2	Has structured knowledge of the direction of global scientific research and the latest discoveries in the field of multifunctional synthesis of modified materials for biomedical applications (such as wound healing) based on bioproducts.	P8S-WG	seminar	credit/report
P8S_WK1	Knows and understands the impact of technological development on civilisation and the resulting consequences for the world.	P8S-WK	seminar	credit/report
Skills No.	is able to:			
P8S_UW1	Based on extensive theoretical knowledge supported by laboratory	P8S_UW	seminar	credit/report

	experience, is able to identify and solve various research problems related to the multifunctional synthesis of modified materials for biomedical applications based on bioproducts. Is able to define the purpose and subject of scientific research, formulate a research hypothesis, develop research techniques and tools, and draw conclusions based on the results of their research work.			
P8S_UK6	Can present the results of their research work using a foreign language, including specialist language (minimum B2 CEFR). Can actively participate in discussions on scientific and professional topics in a national and international environment.	P8S_UK	seminar	credit/report
P8S_UU1	Is able to independently select scientific literature and, on its basis, deepen their knowledge of the subject of their interest and research and improve their analytical skills based on current interdisciplinary knowledge; is also able to inspire others to take action and develop.	P8S_UU	seminar	credit/report
P8S_UU2	They are able to use their extensive interdisciplinary knowledge through creative and research activities, and are also able to supervise the learning process of others using and available modern teaching methods and tools.	P8S_UU	seminar	credit/report
P8S_UU3	Is able to update their interdisciplinary knowledge in the field of exact and natural sciences, particularly in biotechnology, thematically related to the multifunctional synthesis of modified materials for biomedical applications based on bioproducts, through a continuous learning process, is able to take care of their own scientific development and improve their own competences, as well as take care of the development of others.	P8S_UU	seminar	credit/report
Social competences No.	is ready to:			
P8S_KK1	Is ready to critically assess existing scientific achievements in a field related to the doctoral thesis within the chosen scientific discipline of biotechnology.	P8S_KK	seminar	credit/report
P8S_KK2	Is ready to critically evaluate their own research contribution to the development of science within the scientific discipline of biotechnology in	P8S_KK	seminar	credit/report

	the field of multifunctional synthesis of modified materials for biomedical applications based on bioproducts.					
P8S_KK3	Is prepared to solve theoretical and practical problems using their knowledge in the scientific discipline of biotechnology and related disciplines.	P8S_KK	seminar	credit/report		
FORMS OF TEACHING, NUMBER OF HOURS AND CREDITS						
Semester (no.)	Lecture	Exercise/Seminar	Lab	Practical	Other	Number of ECTS points
I	-	5	-	-	-	1
TEACHING METHODS						
<div>- seminar with multimedia presentation,</div> <div>- lecture-style seminar,</div> <div>- bibliographic literature searching</div>						
CURRICULUM CONTENT						
<div>Topic 1: Literature searching tools: Web of Science, Scopus</div> <div>Topic 2: Synthesis and characterization of nanomaterials for biomedical applications</div> <div>Topic 3: Nanomaterials for tissue engineering, including wound healing</div>						
COURSE COMPLETION REQUIREMENTS (ASSESSMENT CRITERIA)						
<div>After completing the course, the doctoral student prepares a report related to the subject matter of the course. Writing a report proposing methods for assessing the suitability of nanomaterials for use in tissue regeneration.</div> <div>The applicable grading scale for the course is as follows:</div> <div>(zal.) – passed,</div> <div>(fail) - fail.</div>						
TOTAL WORKLOAD REQUIRED OF THE DOCTORAL STUDENT TO ACHIEVE THE INTENDED LEARNING OUTCOMES IN TERMS OF HOURS AND ECTS POINTS						
Form of activity			Average number of hours to complete the activity			
Hours spent in direct contact resulting from from the study programme			5 hours			
Other with teacher participation (participation in consultations, examinations)			1 hour			
Hours completed independently by the doctoral student (preparation for classes, exams, writing papers, etc.)			24			
TOTAL HOURS			30 hours			
TOTAL NUMBER OF ECTS POINTS*			1			
LITERATURE						
Basic literature:	<div>- W. Fu <i>et al.</i>, Opportunities and challenges of nanomaterials in wound healing: Advances, mechanisms, and perspectives. <i>Chemical Engineering Journal</i> 495 (2024) 153640, https://doi.org/10.1016/j.cej.2024.153640</div> <div>- H. S. Kim <i>et al.</i>, Advanced drug delivery systems and artificial skin grafts for skin wound healing. <i>Advanced Drug Delivery Reviews</i> 146 (2019) 209–239. https://doi.org/10.1016/j.addr.2018.12.014</div>					

	<ul style="list-style-type: none"> - B. Blanco-Fernandez <i>et al.</i>, Nanotechnology Approaches in Chronic Wound Healing. <i>Advances in Wound Care</i>, 2021, 10, 234. DOI: 10.1089/wound.2019.1094
Supplementary literature:	<ul style="list-style-type: none"> - T. Liu <i>et al.</i>, Nanomaterials and nanomaterials-based drug delivery to promote cutaneous wound healing. <i>Advanced Drug Delivery Reviews</i> 193 (2023) 114670, https://doi.org/10.1016/j.addr.2022.114670 - C. Wang <i>et al.</i>, Wound management materials and technologies from bench to bedside and beyond. <i>Nature Reviews Materials</i>, 2024, 9 550–566, https://doi.org/10.1038/s41578-024-00693-y

* (1 ECTS POINT CORRESPONDS TO 25–30 HOURS OF TOTAL WORK REQUIRED BY A DOCTORAL STUDENT TO ACHIEVE THE INTENDED LEARNING OUTCOMES, E.G. 2 ECTS POINTS CORRESPOND TO 50–60 HOURS)

.....Raluca M. Fratila, 20.11.2025.....

Date and signature of the course lecturer

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Approval of the Head of the Unit or authorised person