

**COURSE SYLLABUS – DOCTORAL SCHOOL
EDUCATION CYCLE 2025/2026 - 2028/2029**

GENERAL COURSE INFORMATION				
Course title	<i>Doctoral Seminar</i>			
Unit responsible for the course	Doctoral School of the University of Rzeszów			
Course type	<i>Compulsory course</i>			
Year/Semester	Years I -IV, semesters: I - VII			
Discipline	Biotechnology			
Language of instruction	Polish / English			
Course coordinator	Assoc. Prof. Małgorzata Kus-Liśkiewicz, DSc			
Course instructor(s)	Assoc. Prof. Małgorzata Kus-Liśkiewicz, DSc			
Prerequisites	Academic education at the Master's degree level. Knowledge, skills and social competences corresponding to Level 7 of the Polish Qualifications Framework. Foreign language proficiency at B2 level			
COURSE DESCRIPTION				
<p>The aim of the Doctoral Seminar is to develop doctoral students' research independence through discussion of current problems in biotechnology, evaluation of modern research methods, and improvement of scientific argumentation skills. The course supports doctoral students in planning, conducting and presenting research, critically analyzing scientific literature, and systematically developing their doctoral dissertation.</p>				
LEARNING OUTCOMES AND METHODS OF VERIFICATION				
Symbol efektu uczenia się	Zakładane efekty uczenia się	Odniesienie do efektów uczenia się dla kwalifikacji na poziomie 8 PRK (symbol)	Teaching form	Methods of verification
Knowledge	<i>The doctoral student:</i>			
P8S_WG1	has an extensive theoretical knowledge supported by research experience and is familiar with the current national and international scientific achievements in biotechnology and related disciplines	P8S_WG	seminar	oral presentations, discussion
P8S_WG2	knows the main directions of development and the latest discoveries in biotechnology	P8S_WG	seminar	oral presentations, discussion
P8S_WG3	understands and correctly uses scientific terminology in biotechnology in both the native and a foreign language	P8S_WG	seminar	oral presentations, discussion
Skills	<i>The doctoral student:</i>			
P8S_UW1	is able to identify and solve research problems, define research objectives and hypotheses, select and improve research methods and tools, and draw conclusions based on research results	P8S_UW	seminar	oral presentations, discussion, written assignments
P8S_UW2	is able to critically select and use scientific literature to solve research problems and create new elements of	P8S_UW	seminar	oral presentations,

	scientific output			discussion, written assignments
P8S_UW3	can analyse and critically evaluate research results, expert reports and other scientific studies	P8S_UW	seminar	oral presentations, discussion, written assignments
P8S_UK6	can present research results publicly and participate in scientific discussions in an international environment using a foreign language at B2 level	P8S_UK	seminar	oral presentations, discussion, written assignments
Social Competences	<i>The doctoral student:</i>			
P8S_KK1	is prepared to critically evaluate scientific achievements within the discipline of biotechnology, including their own contribution to its development	P8S_KK	seminar	oral presentations, discussion, written assignments
P8S_KK3	is capable of solving cognitive and practical problems based on extensive knowledge	P8S_KK	seminar	oral presentations, discussion, written assignments

DURATION OF THE COURSE, ECTS CREDITS

Semester (nr)	Lect.	Conv.	Lab.	Prakt.	Other	ECTS
I - VII	-	-	-	-	7 x 15 h - 105 h	7 x 2 ECTS – 14 ECTS

TEACHING METHODS

scientific discussion, study of scientific literature, multimedia presentations, preparation and presentation of research objectives, methods and results, assessment assignments, monitoring progress in the preparation of the doctoral dissertation

COURSE CONTENT

Semester I

1. Current research directions and trends in biotechnology, with particular emphasis on biomaterial synthesis for regenerative medicine.
2. Review and critical analysis of scientific literature in the above area.
3. Preliminary formulation of the research problem and objectives of the doctoral dissertation.

Semester II

1. Research planning and methodology in biotechnology, with emphasis on biomaterial synthesis studies.
2. Selection and validation of research methods.
3. Ethical aspects of scientific research, including in vitro vs. in vivo studies.

Semester III

1. Conducting experimental research.
2. Statistical analysis and interpretation of results, selection of appropriate statistical tests.
3. Discussion of results in the context of literature on biomaterial synthesis.

Semester IV

1. Publishing scientific research results: structure of scientific papers and types of publications.
2. Principles of publication ethics and bibliometric indicators.
3. Preparation of a scientific article.

Semester V

1. Structure and editing of the doctoral dissertation.
2. Presentation and interpretation of results in the doctoral thesis.
3. Formulation of conclusions and research summary.

Semester VI

1. Presentation of research results (conferences, posters).
2. Scientific communication and international cooperation.
3. Commercialisation and funding of research (basic principles).

Semester VII

1. Procedure for awarding the doctoral degree and formal requirements.
2. Preparation for the doctoral dissertation defence.
3. Presentation of the doctoral student's scientific achievements.

COURSE COMPLETION REQUIREMENTS (ASSESSMENT CRITERIA)

Assessment is based on the doctoral student's continuous work in each semester and academic year, including research progress, knowledge development, literature study, engagement, and advancement in the preparation of the doctoral dissertation.

The course is completed at the end of each semester:

- pass
- fail

Assessment criteria:

- up to 60% – fail: no progress in research, insufficient knowledge development, lack of literature study, no active participation in discussion, failure to fulfil academic duties;
- 61–100% – pass: progress in research, systematic knowledge development, study of basic and supplementary literature, active participation in discussion, fulfilment of academic duties.

TOTAL STUDENT WORKLOAD AND ECTS

Contact hours	7 x 15 h – 105 h
Other activities with instructor (consultations, assessment)	6
Independent work of doctoral student	309
TOTAL HOURS	420
TOTAL ECTS*	7 x 2 ECTS – 14 ECTS

LITERATURE

Basic literature	Current scientific articles, monographs and source materials in biotechnology, research methodology, ethics and scientific publishing, selected individually according to the topic of the doctoral dissertation and updated on an ongoing basis.
Supplementary literature	Scientific databases and abstracts from the latest thematic scientific conferences.

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Data i podpis prowadzącego przedmiotu

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Akceptacja Kierownika Jednostki lub osoby upoważnionej