

A COURSE SYLLABUS – DOCTORAL SCHOOL
REGARDING THE QUALIFICATION CYCLE FROM 2021 TO 2025

GENERAL INFORMATION ABOUT COURSE				
Course title	Scientific research methodology			
Name of the unit running the course	Doctoral School at University of Rzeszów			
Type of course (<i>obligatory, optional</i>)	obligatory			
Year and semester of studies	Year I, winter semester			
Discipline	Biological Sciences			
Language of Course	polish			
Name of Course coordinator	Dr hab. Renata Zadrąg-Tęcza, prof. UR			
Name of Course lecturer	Dr hab. Renata Zadrąg-Tęcza, prof. UR			
Prerequisites	General knowledge of biological sciences			
BRIEF DESCRIPTION OF COURSE (100-200 words)				
<p>The main aim of the course is to familiarise the students with the essence and concept of science, as well as with the basic concepts and assumptions of scientific research. The goal is also to provide the students with knowledge that will enable them to plan and implement research studies and scientific projects. The content of the course includes presentation of the purpose and principles of the process of scientific cognition and an overview of research methods and tools. Students will learn about the main stages of scientific research with a view to formulating a research problem, in particular how to formulate and verify hypotheses, select research methods or formulate results and conclusions, and will also get acquainted with various types of scientific publications and principles of the publication process. The classes are aimed at improving the skills of planning and conducting a research process in the field of biological sciences, selecting research methods and tools for solving cognitive problems and presenting data obtained in the course of research work.</p> <p>The course program is intended to prepare the students for conducting scientific research in the field of biological sciences and provide them with skills required to formulate and present results of their research.</p>				
COURSE LEARNING OUTCOMES AND METHODS OF EVALUATING LEARNING OUTCOMES				
Learning outcome	The description of the learning outcome defined for the course	Relation to the degree programme outcomes (symbol)	Learning Format (Lectures, classes,...)	Method of assessment of learning outcomes (e.g. test, oral exam, written exam, project,...)
Knowledge (no.)				
1.	The PhD student knows and understands the world scientific achievements, including theoretical foundations as well as general issues and selected specific issues of biological sciences to the extent that allows for a revision of the existing paradigms.	P8S-WG/1	Lectures; Classes	written exam; project
2.	PhD student knows and understands the main development trends in the	P8S-WG/2	Lectures	written exam

	discipline of biological sciences					
3.	PhD student knows the methodology of scientific research, in particular in the field of biological sciences		P8S-WG/3	Lectures; Classes	written exam; discussion; project	
4.	PhD student knows the rules of disseminating the results of scientific activity, also in the open access mode		P8S-WG/4	Classes	discussion during classes; project	
Skills (no.)						
1.	PhD student is able to use knowledge from various fields of science for creative identification and innovative solving of complex problems or performing research tasks, in particular: - define the purpose and subject of research, formulate a research hypothesis, - develop methods, techniques and research tools and use them creatively, - make conclusions on the basis of scientific research		P8S-UW/1	Lectures; Classes	written exam; project	
2.	PhD student is able to make a critical analysis and evaluation of the results of scientific research, expert activity and other creative works and their contribution to the development of knowledge		P8S-UW/2	Classes	discussion during classes; analysis and interpretation of scientific publication	
Social competence (no.)						
1.	PhD student recognizes the importance of knowledge in solving cognitive and practical problems		P8S-KK/3	Classes	discussion during classes; analysis and interpretation of scientific publication	
LEARNING FORMAT – NUMBER OF HOURS						
Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
I	10	20	-	-	-	0
METHODS OF INSTRUCTION						
Lecture with elements of a multimedia presentation Discussion Analysis and interpretation of scientific publication with discussion						

COURSE CONTENT

1. Lectures/ Seminars:

The essence and concept of knowledge / science. Scientific knowledge as the main goal of science. Principles of the scientific cognition process. Objectives and functions of scientific research. Types of scientific research. Methodology as a science of the scientific research principles. The main stages of scientific work. Principles of formulating a research problem. Hypotheses and their importance in scientific research. Falsificationism as a criterion for distinguishing between scientific and non-scientific knowledge. Selection and construction of research methods and tools. Tasks and types of research methods. Scientific publication, purpose, tasks and types of scientific publications..

2. Seminars / Lab classes/ others:

Organization and stages of scientific research.

Development of the assumptions of the research project including: formulation of the goal, selection of the research sample, selection of evaluation and measurement methods, formulation of conclusions.

Analysis of the scientific text in the field of biological sciences.

Development of the thematic concept of a scientific article.

COURSE ASSESSMENT CRITERIA

Lectures: written exam

The number of points obtained is decisive for the evaluation (bdb 91-100%, db plus 81-90%, db 71-80%, dst plus 61-70%, dst 51-60%, ndst 0-50%)

Seminars: credit with a grade

preparation and presentation of the research project

The assessment takes into account the method of presenting and justifying the undertaking of the research problem, the selection of research methods, the preparation and interpretation of the results and the method of preparation and presentation of the project assumptions (justification of individual stages, selection of reference materials, editorial correctness).

TOTAL PhD STUDENT WORKLOAD REQUIRED TO ACHIEVE THE INTENDED LEARNING OUTCOMES – NUMBER OF HOURS AND ECTS CREDITS

Activity	Number of hours
Scheduled course contact hours	30
Other contact hours involving the teacher (consultation hours, examinations)	2
Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	20
Total number of hours	52
Total number of ECTS credits	0

INSTRUCTIONAL MATERIALS

Compulsory literature:	Apanowicz J. „Metodologiczne uwarunkowania pracy naukowej” wyd. Difin, Warszawa, 2005 Zieliński J. „Metodologia pracy naukowej” Oficyna wydawnicza ASPRA-JR, Warszawa, 2019 Watała C., Różalski M., Boncler M., Kaźmierczak P. „Badania i publikacje w naukach biomedycznych” T. 1-2, α -medica press, 2011
Complementary	Siuda P., Wasylczyk P. „Publikacje naukowe” PWN, Warszawa, 2018

literature:

Stępień B. „Zasady pisania tekstów naukowych” PWN, Warszawa, 2016