A COURSE SYLLABUS – DOCTORAL SCHOOL
regarding the qualification cycle from 2025/2026 to 2028/2029

GENERAL INFORMATION ABOUT COURSE	
Course title	***RESEARCH METHODOLOGY***
Name of the unit running the course	Doctoral School of the University of Rzeszów
Type of course *(obligatory, optional)*	compulsory
Year and semester of studies	First year/First and second semester
Discipline	**Biological sciences**
Language of Course	Polish language
Name of Course coordinator	**Roma Durak, PhD, Professor at the University of Rzeszów**
Name of Course lecturer	**Roma Durak, PhD, Professor at the University of Rzeszów**
Prerequisites	Knowledge, skills and social competences related to scientific research methodology, achieved at level 7 of the Polish Qualifications Framework.

BRIEF DESCRIPTION OF COURSE
(100-200 words)

As part of the course: 'Research Methodology' doctoral students will consolidate their knowledge, skills and social competences regarding the set of rules, procedures and techniques used in the scientific research process applied in the scientific discipline of biological sciences. These include planning, conducting and analysing research with the aim of obtaining reliable and objective results. A key aspect in achieving this goal is the selection of appropriate research methods that will allow for an adequate solution to the research problem and confirmation or refutation of the hypotheses.

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.)	knows and understands, has knowledge			
P8S_WG/3	Knows, understands and uses specialist terminology used in the national and international scientific and professional environment in the scientific discipline of biological sciences, in which scientific research is planned.	**P8S_WG**	Conversatory	discussion
P8S_WG/4	Has extensive knowledge of the applied research methodology in the discipline of biological sciences, using interdisciplinary research tools and techniques to obtain the most reliable and objective research results.	**P8S_WG**	Conversatory	presentation
P8S_WK/3	Has extensive knowledge of the possibilities of transferring the results of their scientific activity to the economic and social spheres.	**P8S_WK**	Conversatory	discussion
Skills (no.)	can			
P8S_UW/1	Is able to use interdisciplinary knowledge to identify and practically solve research problems encountered by: defining the objective, subject and research	**P8S_UW**	Conversatory	discussion

	hypothesis, creating innovative research methods, techniques and tools, and drawing conclusions based on the research results obtained.			
P8S_UK/1	Actively participate in national and international scientific and professional communities, sharing the results of their research work.	**P8S_UK**	Conversatory	discussion
P8S_UO/1	Through active participation in the national and international research community, participate in individual and team scientific projects, performing various roles in them.	**P8S_UO**	Conversatory	discussion, presentation
Social competence (no.)	is ready to			
P8S_KR1	Strengthen and develop the ethos of research communities, including conducting scientific activity independently, taking into account the principles of intellectual property protection and the principles of public ownership of research results.	**P8S_KR**	Conversatory	discussion

Semester (no.)	Lectures	seminar	Conversatory / Lab classes	Internships	others	ECTS
I	**-**	**-**	**-**	**-**	**30**	**3**
II	**-**	**-**	**-**	**-**	**30**	**3**
total:	**-**	**-**	**-**	**-**	**60**	**6**

METHODS OF INSTRUCTION

- TRADITIONAL SEMINAR;
- SEMINAR WITH MULTIMEDIA PRESENTATION;
- DISCUSSION;

COURSE CONTENT

Course content
Semester I:
- Methods of plant and insect breeding in climate chambers, taking into account environmental conditions (photoperiod, temperature and humidity).
- Principles and methods of bacterial culture.
- Methods of testing behavioural responses of insects to biotic stress.

Semester II:
- Principles and methods of preparing entomological experiments and collecting material for analysis.
- Methods of testing enzymatic responses of insects to biotic stress.
- Methods of testing metabolic responses of insects to biotic stress.

COURSE ASSESSMENT CRITERIA

The course is taught in semesters I and II. After semester I, the course ends with a ZO1 grade, and after semester II, it ends with an E2 examination. Classes are conducted in direct contact between the doctoral student and their supervisor.
In order to pass the course after semester I, a report on the completion of the task must be submitted.
In order to pass the course after semester II, at least 51% of the points from the written work must be obtained.

In order to obtain a positive grade, the following conversion table is used for the corresponding percentage of

points obtained:
- up to 50% - unsatisfactory (the doctoral student is not making progress in scientific research, is not expanding their knowledge, is not studying the literature, is not participating in substantive discussions, is not fulfilling their scientific obligations);
- 51% - 60% - satisfactory (the doctoral student makes negligible progress in scientific research, expands their knowledge, studies basic literature, the discussion is limited to a narrow range of substantive knowledge, fulfils basic scientific duties);
- 61% - 70% - satisfactory plus (the doctoral student makes progress in scientific research, expands their knowledge, studies basic literature, participates substantively in discussions, fulfils their scientific duties);
- 71% - 80% - good (the doctoral student makes significant progress in scientific research, expands their knowledge, studies basic and supplementary literature, participates substantively in discussions, fulfils all scientific duties);
- 81% - 90% - good plus (the doctoral student makes significant progress in scientific research, systematically expands their knowledge, studies basic and supplementary literature, participates substantively in discussions, fulfils all scientific obligations);
- 91% - 100% - very good (the doctoral student makes significant progress in scientific research, systematically expands their knowledge, studies basic, supplementary and advanced literature, participates substantively in discussions, fulfils all scientific obligations);

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	**2 x 30 hrs. – 60 hrs.**
Other contact hours involving the teacher (consultation hours, examinations)	**4**
Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	**116 hrs**
Total number of hours	**180 hrs.**
Total number of ECTS credits	**6 ECTS**

INSTRUCTIONAL MATERIALS

Compulsory literature:	Artykuły naukowe w języku polskim i obcym z zakresu entomologii, fizjologii i biochemii owadów. Nation James L. 2022. Insect Physiology and Biochemistry. 4nd edn, CRS Press Taylor & Francis Group. New York. Gilbert L Ed. 2012. Insect molecular biology and biochemistry. Academic Press Elsevier, UK, USA. Leszczyński B., Tjallingii. 1994. Przewodnik do elektronicznej rejestracji żerowania owadów w tkankach roślin. WSR-P, Siedlce.
Complementary literature:	Weiner J., 2008. Technika pisania i prezentowania przyrodniczych prac naukowych. Wyd. Naukowe PWN, Warszawa. Włodzimierz Meissner W., 2014. Metody statystyczne w biologii. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk.

*(1 ECTS CREDIT CORRESPONDS TO 25 - 30 HOURS OF THE TOTAL WORKLOAD OF A DOCTORAL STUDENT, NEEDED TO ACHIEVE THE ESTABLISHED EFFECTS).

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Date and signature of the Course lecturer

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Approved by the Head of the Department or an authorised person