

A COURSE SYLLABUS – DOCTORAL SCHOOL
REGARDING THE QUALIFICATION CYCLE FROM 2022 TO 2026.

GENERAL INFORMATION ABOUT COURSE				
Course title	Doctoral seminar			
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 - IV / semester I - VII			
Discipline	agriculture and horticulture			
Language of Course	Polish			
Name of Course coordinator	Dr hab. inż. Waław Jarecki, prof. UR			
Name of Course lecturer	Dr hab. inż. Waław Jarecki, prof. UR			
Prerequisites	Knowledge of the subjects pursued at the higher (master's) level in the courses assigned to the scientific discipline of agriculture and horticulture.			
BRIEF DESCRIPTION OF COURSE (100-200 words)				
<p>Presentation of the possibility of obtaining scientific results from various sources and the principles of respecting copyrights. Possibilities of patenting from the scope of the dissertation being prepared. Types of scientific research (basic, applied, implementation). Possibilities of dissemination of own research results and obtaining funds for their financing. Presentation of the principles of commercialization of agricultural and horticultural research results. Expanding knowledge of the methodology of agricultural experiments, collation of results, statistical calculations and their interpretation. Periodically refereeing progress from research for a doctoral dissertation. Principles of establishing and conducting rigorous field experiments, including vegetation observations and physiological measurements of plants. Acquisition of meteorological data and principles of sampling material (soil, seeds) for chemical analysis. Improving laboratory skills and learning about the apparatus on the university's equipment. Acquired knowledge in the doctoral seminar will prepare you to solve scientific and practical problems in accordance with the needs of agriculture and society.</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.)	(Knows and understands)			
1	Issues concerning changes in national and global agriculture and related scientific achievements.	P8S-WG/1	Seminar	Oral report, continuous observation during classes, dissemination of knowledge at conferences or submission of publications
2	Directions of development and recent achievements concerning the discipline of agriculture and horticulture and related disciplines. Understands the need for interdisciplinary research	P8S-WG/2	Seminar	Oral report, continuous observation during classes, dissemination of knowledge at conferences or submission of publications

	and the dilemmas of modern civilization in terms of agriculture in its broadest sense.			
3	Definitions and professional vocabulary in the discipline of agriculture and horticulture and related disciplines. Knows the above issues in a foreign language.	P8S-WG/3	Seminar	Oral presentation, continuous observation during classes, dissemination of knowledge at conferences or submission of publications
Skills (no.)	(Able to)			
1	Be able to use and combine knowledge from different disciplines to conduct scientific research, introduce research methods and techniques used in another discipline into their research. Formulate a research objective and hypothesis. Make inferences based on the obtained research results.	P8S_UW/1	Seminar	Presentation, continuous observation during classes, dissemination of knowledge at conferences or submission of publications
2	Be able to use national and world scientific literature and critically analyze the results of scientific research. Conduct discussions on research problems and innovative solutions. Able to use the acquired knowledge to create one's own research and scientific output.	P8S_UW/2	Seminar	Oral discussion with a doctoral student, continuous observation during classes, dissemination of knowledge at conferences or submission of publications
3	Be able to obtain information about scientific research from various sources. Evaluate the stature of scientific research including critical analysis. Can evaluate the contribution of expert analysis and works of a creative nature to the development of agricultural and horticultural sciences.	P8S_UW/3	Seminar	Presentation, continuous observation during classes, dissemination of knowledge at conferences or submission of publications

4	Able to use English (level B2 of the European Language Learning System) to a degree that enables international contacts.	P8S_UK6	Seminar	Oral credit on the basis of an oral report on the topic of the doctoral dissertation.
Social competence (no.)	(Ready to)			
1	Critically evaluate his own and other scientists' achievements within the discipline of agriculture and horticulture. He is ready to evaluate the importance of this output in the development of agriculture both nationally and internationally.	P8S_KK1	Seminar	Continuous observation during classes, credit on the basis of a study on the subject of the doctoral thesis being prepared
2	Recognize knowledge and its importance in solving scientific and practical problems in agriculture. He is ready to develop himself in the scientific community and expand his knowledge.	P8S_KK3	Seminar	Oral report, continuous observation during classes, dissemination of knowledge at conferences or submission of publications

LEARNING FORMAT – NUMBER OF HOURS

Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
I-VII	-	7 x 15 hrs. – 105 hrs.	-	-	-	14

METHODS OF INSTRUCTION

Individual and team work in the laboratory and work in a research group (jointly conducting many years of field experiments), solving tasks with discussion, analyzing the results and presenting them.

COURSE CONTENT

Seminar: content implemented in semesters I through VII:

Familiarized with the methodology of conducting one-, two- and three-factor experiments in the discipline of agriculture and horticulture. Discussed the prerequisites for setting up a three-year strict field experiment. Principles of sampling soil and plant material for chemical analysis and the possibility of obtaining weather data from local weather stations. Measurements and field observations of plants and collection of samples for biometric analyses. Preparation of material for laboratory analysis and familiarization with measurement apparatus. Evaluating the usefulness of various computer programs for calculations, including statistical ones. Tabulating and graphically summarizing research results. Writing scientific and popular science papers, obtaining and analyzing source literature. Developing scientific projects or grants. Preparing presentations and posters for national and international scientific conferences.

COURSE ASSESSMENT CRITERIA

A passing grade for the seminar will be calculated on the basis of the following criteria: oral report on completed assignments, activity in class and participation in discussion, development or presentation

of own research results, dissemination of research results.

At the same time, it will be possible to obtain for:

- oral report on completed tasks - max 25%,
- activity in class and participation in discussion - max 25%,
- development or presentation of own research results - max 25%,
- dissemination of research results - max 25%.

Possible semester grades are: 2.0, 3.0, 3.5, 4.0, 4.5, 5.0.

Scoring: up to 50% - ndst; 51-60% dst; 61-70% +dst; 71-80% db; 81-90% +db; 91-100% bdb

**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	7 x 15 hrs. – 105 hrs.
Other contact hours involving the teacher (consultation hours, examinations)	-
Non-contact hours – student's own work (preparation for classes or examinations, project, etc.)	315 hrs.
Total number of hours	420 hrs.
Total number of ECTS credits	14

INSTRUCTIONAL MATERIALS

Compulsory literature:	Mądry W. 1998. Doświadczalnictwo. Doświadczenia czynnikowe. Wykłady i ćwiczenia. Fundacja Rozwój SGGW. Warszawa. Weiner J. 2021. Technika pisania i prezentowania przyrodniczych prac naukowych. PWN, Warszawa. Jaskulski D., Jaskulska I. 2016. Współczesne sposoby i systemy uprawy roli w teorii i praktyce rolniczej. CDR w Brwinowie, oddział w Poznaniu.
Complementary literature:	Czyżewski A., Poczta -Wajda A., 2011. Polityka rolna w warunkach globalizacji: doświadczenia GATT/WTO. Polskie Wydawnictwo Ekonomiczne, Warszawa. Miniszewski M. 2021. Dwie dekady rozwoju polskiego rolnictwa. Innowacyjność sektora rolnego w XXI wieku, Kutwa, K. (współpr.), Polski Instytut Ekonomiczny, Warszawa. The latest scientific publications on research in the field of agriculture and horticulture. Statistics of the Central Statistical Office and FAOSTAT

*(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