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 *(obligatory, optional)*	obligatory
Year and semester of studies	Year I - II / semester I - IV
Discipline	agriculture and horticulture
Language of Course	Polish
Name of Course coordinator	Dr hab. inż. Wacław Jarecki, prof. UR
Name of Course lecturer	Dr hab. inż. Wacław Jarecki, prof. UR
Prerequisites	Knowledge of subjects carried out at the level of higher (Master's) studies in agricultural and horticultural fields

BRIEF DESCRIPTION OF COURSE
(100-200 words)

Presentation of the possibility of obtaining research results from various sources and the principles of respecting copyright. Possibilities of patenting in the field of the doctoral thesis being prepared. Types of scientific research (basic, applied, implementation). Opportunities to disseminate the results of own research and to obtain funds for their financing. Presentation of the principles of commercialization of research results in the field of agriculture and horticulture. Expanding knowledge about the methodology of agricultural experiments, compilation of results, statistical calculations and their interpretation. Cyclic reporting of research progress to the doctoral dissertation. Principles of setting up and conducting strict field experiments, including observations of vegetation and physiological measurements of plants. Acquisition of meteorological data and principles of material sampling (soil, seeds) for chemical analyses. Improving the skills of working in the laboratory and getting to know the equipment at the university. The knowledge acquired during the doctoral seminar will allow you to prepare for solving scientific and practical problems in accordance with the needs of agriculture and society.

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 related to changes taking place in domestic and world 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 the latest achievements in the discipline of agriculture and horticulture. He understands the need for interdisciplinary	P8S-WG/2	Seminar	Oral report, continuous observation during classes, dissemination of knowledge at conferences or submission of publications

	research and the dilemmas of modern civilization in terms of broadly understood agriculture.			
3	Definitions and industry vocabulary in the discipline of agriculture and horticulture and related disciplines. He 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	He can use and combine knowledge from different disciplines to conduct scientific research, introduce research methods and techniques used in another discipline to his research. Formulate the research goal and hypothesis. Conclude on the basis of the obtained test results.	P8S_UW/1	Seminar	Presentation, continuous observation during classes, dissemination of knowledge at conferences or submission of publications
2	He can use national and world scientific literature and make a critical analysis of the results of scientific research. Lead discussions on research problems and innovative solutions. He is able to use the acquired knowledge to create his own research workshop and scientific achievements.	P8S_UW/2	Seminar	Oral discussion with a doctoral student, continuous observation during classes, dissemination of knowledge at conferences or submission of publications
3	Is able to obtain information about scientific research from various sources. Evaluate the importance of scientific research, including its critical analysis. Can assess the contribution	P8S_UW/3	Seminar	Presentation, continuous observation during classes, dissemination of knowledge at conferences or submission of publications

	of expert analyzes and creative work to the development of agricultural and horticultural sciences			
4	He is able to use English (level B2 of the European Language Education System) to the extent 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	Critical evaluation of own and other scientists' achievements in the discipline of agriculture and horticulture. He is ready to assess the importance of this achievement in the development of agriculture both in the country and in the world.	P8S_KK1	Seminar	Continuous observation during classes, credit on the basis of a study on the subject of the doctoral thesis being prepared
2	Recognition of knowledge and its importance in solving scientific and practical problems in agriculture. He is ready to develop in a scientific environment 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-IV					60	8

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:

Acquainted with the methodology of conducting one-, two- and three-factor experiments in the discipline of agriculture and horticulture. Discussion of the conditions necessary to establish 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 meteorological stations. Measurements and field observations of plants and collecting duels for biometric analyses. Preparation of material for laboratory

analysis and knowledge of measuring equipment. Assessment of the usefulness of various computer programs for calculations, including statistical ones. Tabular and graphical summary of test results. Learning to write scientific and popular science works, acquiring and analyzing source literature. Learning to write projects or research grants. Rules for preparing presentations and posters for national and international scientific conferences.

COURSE ASSESSMENT CRITERIA

Grading of the seminar will be calculated on the basis of the following criteria: oral report on completed tasks, active participation in classes and participation in discussions, development or presentation of own research results, dissemination of research results. Whereas you will be able to get for: • oral report on completed tasks - max 25%, • activity in class and participation in discussions - max 25%, • development or presentation of own research results - max 25%, • dissemination of research results max. 25%. Scoring: 51-60% dst; 61-70% +dst; 71-80% db; 81-90% +db; 91-100% very good

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	60
Other contact hours involving the teacher (consultation hours, examinations)	-
Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	30
Total number of hours	90
Total number of ECTS credits	8

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