

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

<b>GENERAL INFORMATION ABOUT COURSE</b>				
Course title	Modern agricultural systems			
Name of the unit running the course	Doctoral School at the University of Rzeszów			
Type of course ( <i>obligatory, optional</i> )	Compulsory, optional (specialized) subject to choose from			
Year and semester of studies	2023/2024; semester V			
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	-			
<b>BRIEF DESCRIPTION OF COURSE</b> (100-200 words)				
<p>The aim of the course is to present historical and contemporary agricultural systems (management systems) in national and global terms. Due to the different divisions of agricultural systems, the most important ones will be discussed (conventional, ecological, integrated, precise) and the less known ones will be presented. The subject will provide methods of developing agricultural space, both in terms of plant and animal production. The characteristics of agricultural systems will be presented taking into account agronomic, ecological, social and economic criteria. The main scope of the subject content will concern the degree of dependence of agriculture on industrial means of production, including mineral fertilizers and pesticides, and its impact on the natural environment. An important issue will be the discussion of guidelines regarding the prospects for the functioning of Polish agriculture within the Common Agricultural Policy of the European Union.</p>				
<b>COURSE LEARNING OUTCOMES AND METHODS OF EVALUATING LEARNING OUTCOMES</b>				
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,...)
<b>Knowledge (no.)</b>	<b>(Knows and understands)</b>			
1	General issues and selected specific issues regarding the functioning of agricultural systems in the country and in the world.	P8S_WG/1	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
2	Knows the main development trends of individual farming systems in agriculture and horticulture	P8S_WG/2	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic

3	Understands the methodology of scientific research in the field of agriculture and horticulture, including agricultural and horticultural field experiments	P8S_WG/3	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
<b>Skills (no.)</b>	<b>(Able to)</b>			
1	Use the acquired knowledge to implement innovative solutions and perform research tasks in agricultural and horticultural production	P8S_UW/1	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
2	Make a critical analysis and assessment of the results of scientific research, expert activity and other work in the field of agriculture and horticulture and their contribution to the development of agricultural and horticultural knowledge	P8S_UW/2	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
3	Communicate on topics related to agriculture and horticulture to an extent that enables active participation in the international scientific community	P8S_UK/1	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
4	Disseminate the results of scientific activities in the field of agriculture and horticulture	P8S_UK/2	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
5	Initiate debate in the field of agriculture and horticulture and related disciplines	P8S_UK/3	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic

6	Participate in scientific discourse on agricultural and horticultural issues and related disciplines	P8S_UK/4	Lectures, classes	Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
7	Speak a foreign language at level B2 of the European System of Language Education to the extent enabling participation in an international scientific and professional environment in the field of agriculture, horticulture and related disciplines	P8S_UK/5	Lectures, classes	Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
<b>Social competence (no.)</b>	<b>(Ready to)</b>			
1	Critical assessment of achievements within the discipline of agriculture and horticulture	P8S_KK/1	Lectures, classes	Colloquium, Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
2	Recognition of the importance of knowledge in the field of agriculture and horticulture in solving scientific and practical problems	P8S_KK/3	Lectures, classes	Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic
3	Initiating activities for the public interest in the field of agriculture and horticulture	P8S_KO/2	Lectures, classes	Oral report on the tasks performed, activity in class and participation in the discussion, written study or presentation on a given topic

LEARNING FORMAT – NUMBER OF HOURS						
Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
V	5	10				0
METHODS OF INSTRUCTION						
Lecture with multimedia presentation						
Exercises – discussion, practical activities						
COURSE CONTENT						
<p>Lectures: Discussion of issues related to historical and contemporary agricultural systems (management systems):</p> <ul style="list-style-type: none"> <li>• conventional agriculture,</li> <li>• organic farming,</li> <li>• integrated agriculture,</li> <li>• precision agriculture,</li> <li>• less known agricultural systems and High Tech Farming.</li> </ul> <p>Exercises:</p> <ul style="list-style-type: none"> <li>• learning about prospective directions of agricultural production in the world, the EU and Poland</li> <li>• method and system of farming, simplification of cultivation, crop rotation, monoculture</li> <li>• regenerative agriculture,</li> <li>• carbon farming,</li> <li>• permaculture,</li> <li>• vertical farms</li> <li>• animal housing systems,</li> <li>• greenhouses and tunnels in agricultural production</li> <li>• hydroponics and areoponics</li> <li>• urban agriculture</li> </ul>						
COURSE ASSESSMENT CRITERIA						
<p>The grade for the lecture and exercises (colloquium) will be calculated on the basis of the following criteria: oral report on completed tasks, activity in classes and participation in the discussion, written work or presentation on a given topic.</p> <p>You will be able to get it for: • oral report on completed tasks – max 30%, • activity during classes and participation in discussions – max. 30%, • written study or presentation on a given topic – max 40%, Score: 51-60% dst; 61-70% +dst; 71-80% dB; 81-90% +db; 91-100% very good</p>						
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			15			
Other contact hours involving the teacher (consultation hours, examinations)			2			
Non-contact hours – student's own work (preparation for classes or examinations, project, etc.)			8			
<b>Total number of hours</b>			25			
<b>Total number of ECTS credits</b>			0			

## INSTRUCTIONAL MATERIALS

Compulsory literature:	<p>Jaskulski D., Jaskulska I. 2018. Współczesne sposoby i systemy uprawy roli w teorii i praktyce rolniczej. Centrum Doradztwa Rolniczego. Oddział w Poznaniu. 1-28.</p> <p>Sazońska B., Sambor K., Gajewska M., Stachowicz T., Krysztoforski M., Litwinow A., Pomykała D., Gradka I. 2021. GOSPODAROWANIE EKOLOGICZNE – co każdy rolnik wiedzieć powinien? Centrum Doradztwa Rolniczego w Brwinowie Oddział w Radomiu. 1-59</p> <p>Kuś J. 2000. Systemy gospodarowania w rolnictwie: rolnictwo ekologiczne. IUNG PIB w Puławach. 1-62</p> <p>Kuś J. 1995. Systemy gospodarowania w rolnictwie: rolnictwo integrowane. IUNG PIB w Puławach. 1-38</p> <p>Samborski S. (red. nauk.) 2018. Rolnictwo precyzyjne. PWN. Warszawa.</p>
Complementary literature:	<p>Shaner, W. W. 2019. Farming systems research and development: guidelines for developing countries. Routledge. 1-432.</p> <p>Drygas M., Rosner A. 2008. Polska wieś i rolnictwo w Unii Europejskiej : dylematy i kierunki przemian . Warszawa : Instytut Rozwoju Wsi i Rolnictwa Polskiej Akademii Nauk. 1-435</p> <p>Metodyki Integrowanej Produkcji Roślin. Główny Inspektorat Ochrony Roślin i Nasiennictwa. <a href="https://piorin.gov.pl/publikacje/metodyki-ip/">https://piorin.gov.pl/publikacje/metodyki-ip/</a></p> <p>Dominik A. 2010. System rolnictwa precyzyjnego. Centrum Doradztwa Rolniczego w Brwinowie Oddział w Radomiu. 1-20</p> <p>Agricultural Systems Journal, <a href="https://www.sciencedirect.com/journal/agricultural-systems">https://www.sciencedirect.com/journal/agricultural-systems</a></p>