A COURSE SYLLABUS – DOCTORAL SCHOOL

REGARDING THE QUALIFICATION CYCLE FROM 2024/2025 TO 2027/2028

GENERAL INFORMATION ABOUT COURSE	
Course title	**DOCTORAL LABORATORY**
Name of the unit running the course	Doctoral School at the University of Rzeszów
Type of course *(obligatory, optional)*	Obligatory
Year and semester of studies	**semesters I - VIII**
Discipline	***food and nutrition technology***
Language of Course	Polish
Name of Course coordinator	prof. dr hab. Izabela Sadowska-Bartosz
Name of Course lecturer	prof. dr hab. Izabela Sadowska-Bartosz
Prerequisites	Knowledge of laboratory techniques.

BRIEF DESCRIPTION OF COURSE
(100-200 words)

The aim of the PhD thesis is to prepare the PhD student, under the substantive supervision of the supervisor, to conduct scientific research independently. Moreover, it should also prepare the doctoral student to formulate research hypotheses, optimise research methodology, perceive and verbalise scientific problems. The specific aim is: to carry out laboratory research as part of the completion of the PhD, to analyse statistically and to compile the results of this research. The aim of the doctoral laboratory is also: to broaden the knowledge of methods of acquiring scientific information; to prepare scientific papers with respect for copyright and intellectual property; to draw the doctoral student's attention to the need for further training and systematic familiarisation with current scientific literature.

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)**			
P8S_WG1	broad theoretical knowledge from the scope of the studied discipline of food and nutrition technology and general issues from the scope of related disciplines, current scientific achievements, including the world ones; knowledge concerning its place and importance in the system of science in confrontation with other disciplines;	P8S_WG	conversatore	report
P8S_WG2	the orientation of the development and latest discoveries of scientific research in the discipline of food and nutrition technology, including worldwide;	P8S_WG	conversatore	report

P8S_WG3	specialist terminology used in the discipline of food and nutrition technology and in related disciplines, also in a foreign language;	P8S_WG	conversatore	report
P8S_WG4	issues in research methodology in the chosen discipline; principles of research planning and implementation, using interdisciplinary techniques and research tools;	P8S_WG	conversatore	report
Skills (no.)	**(Able to)**			
P8S_UW1	on the basis of his/her knowledge in the field of agricultural sciences, in the discipline: food and nutrition technology and related scientific fields, he/she is able to identify a research problem, define a research objective, formulate a hypothesis and a research object, develop research techniques, methods and tools and make conclusions on the basis of research results;	P8S_UW	conversatore	report
P8S_UW2	select and use scientific literature in order to properly diagnose and solve research problems and innovative actions in connection with conducted scientific work, as well as to apply appropriate workshop to create new elements of scientific output;	P8S_UW	conversatore	report
P8S_UW3	is able to independently acquire knowledge, expand analytical skills, and stimulate critical sensitivity to recognize dilemmas in conducting scientific research and fulfilling the role of an academic teacher;	P8S_UW	conversatore	report
Social competence (no.)	**(Ready to)**			
P8S_KK1	critically appraise the achievements within the chosen scientific discipline of food and nutrition technology, and critically evaluate the contribution of the results of his/her own research activity to the development of the discipline.	P8S_KK	conversatore	report

LEARNING FORMAT – NUMBER OF HOURS						
Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
I - VIII	**-**	**-**	**8 x 30 hrs. – 240 hrs.**	**-**	**-**	**24**

METHODS OF INSTRUCTION

- conversation classes in a traditional form;
- classes with multimedia presentation;
- discussion;
- interpretation of source texts;
- performing experiments and experiments;
- conducting research.

COURSE CONTENT

Semester I

Topic: Principles of functioning of the research laboratory (seminar).
Topic: Specificity of scientific work, research techniques in the field of the chosen specialization (seminar).
Topic: Searching for scientific literature concerning the topic of the realized doctoral thesis (seminar/laboratory).
Topic: Developing a concept, work plan, defining the aim and methods of research (seminar).
Topic: Conducting pilot laboratory studies to optimise the methodology of selected laboratory studies (laboratory).
Topic: Conducting laboratory investigations as foreseen in the Individual Research Plan (laboratories).
Topic : Developing and interpreting scientific results, formulating conclusions (laboratories).

Semester II

Topic : Searching for and critically evaluating scientific literature related to the topic of the doctoral thesis in progress (seminar).
Topic : Conducting pilot laboratory studies to optimise methodology (laboratories).
Topic: Conducting laboratory investigations foreseen to be carried out in the Individual Research Plan (laboratories)....
Topic: Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic : Editing manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).

Semester III

Topic : Searching for and critically evaluating scientific literature related to the topic of the dissertation in progress (seminar).
Topic : Conducting pilot laboratory studies to optimise laboratory research methodology (laboratories).
Topic: Conducting laboratory investigations as foreseen in the Individual Research Plan (laboratories).
Topic : Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic: Editing manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).

Semester IV

Topic: Critical appraisal of the latest scientific literature concerning the topic of the realized doctoral thesis (semester).
Topic: Conducting pilot laboratory studies in order to optimise the selected laboratory research methodology (laboratories).
Topic: Conducting laboratory research foreseen to be carried out in the Individual Research Plan (laboratories).
Topic: Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic: Editing manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).

Semester V

Topic: Critical appraisal of the latest scientific literature concerning the topic of the conducted doctoral thesis (seminar).
Topic: Conducting pilot laboratory studies to optimise the selected laboratory research methodology (laboratories).

Topic: Conducting laboratory investigations as foreseen in the Individual Research Plan (laboratories).
Topic : Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic: Editing manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).

Semester VI

Topic: Critical appraisal of the latest scientific literature concerning the subject of the conducted doctoral thesis (seminars).
Topic: Conducting pilot laboratory studies in order to optimise the selected laboratory research methodology (laboratories).
Topic: Conducting laboratory research foreseen to be carried out in the Individual Research Plan (laboratories).
Topic: Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic: Editing manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).

Semester VII

Topic: Critical appraisal of the latest scientific literature concerning the topic of the conducted doctoral thesis (seminar).
Topic: Conducting pilot laboratory studies to optimise the selected laboratory research methodology (laboratories).
Topic: Conducting laboratory investigations as foreseen in the Individual Research Plan (laboratories).
Topic : Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic: Editing manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).

Semester VIII

Topic: Critical appraisal of the latest scientific literature concerning the subject of the conducted doctoral thesis (seminars).
Topic: Conducting laboratory research provided for in the Individual Research Plan (laboratories).
Topic: Developing and interpreting scientific results, formulating conclusions (laboratories).
Topic: Editing of manuscripts respecting the intellectual property of the authors of the source literature used (conversation classes).
Topic: Presentation of the results contained in the Self-reference of the dissertation.

COURSE ASSESSMENT CRITERIA

The assessment for this course consists of several variables, the instructor assesses the work of the doctoral student on an ongoing basis based on all aspects of their academic development. Possible semester grades are: 2.0, 3.0, 3.5, 4.0, 4.5, 5.0.
Percentage requirements for the grading scale:
In order to obtain a pass grade, a conversion factor for the corresponding percentage of points obtained is applied:
- up to 50% - inadequate, (the doctoral student does not make progress in research, does not expand knowledge, does not study the readings, does not participate in substantive discussion, does not meet academic obligations);
- 51% - 60% - satisfactory, (the doctoral student makes negligible progress in scientific research, expands the knowledge, studies basic literature, the discussion is limited to a narrow range of substantive knowledge, meets basic scientific obligations);
- 61% - 70% - satisfactory plus, (the student makes progress in scientific research, broadens knowledge, studies basic literature, substantive participation in discussion, fulfils basic scientific duties);
- 71% - 80% - good, (the doctoral student makes significant progress in scientific research, expands knowledge, studies primary and secondary literature, substantively participates in discussions, meets all scientific obligations);
- 81% - 90% - good plus, (the doctoral student makes significant progress in scientific research, systematically extends knowledge, studies primary and supplementary literature, substantively participates in discussions, meets all scientific obligations);
- 91% - 100% - very good (doctoral student makes significant progress in scientific research, systematically extends knowledge, studies basic, complementary and beyond obligatory literature, substantively participates in discussion, meets 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	**8 x 30 hrs. – 240 hrs.**
Other contact hours involving the teacher (consultation hours, examinations)	**10**
Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	**470**
Total number of hours	**720**
Total number of ECTS credits*	**24**

INSTRUCTIONAL MATERIALS	
Compulsory literature:	- Food Oxidants and Antioxidants: Chemical Biological and Functional Properties. Edited by G. Bartosz. Taylor & Francis Group, 2016; - January Weiner: Technika pisania i prezentowania przyrodniczych prac naukowych. Wydawnictwo Naukowe PWN, 2018; - Seals DR, Tanaka H. Manuscript peer review: a helpful checklist for students and novice referees. Adv Physiol Educ. 2000 Jun; 23(1):52-8. PubMed PMID: 10902527; - Blackwell, J. 2011. A Scientific Approach to Scientific Writing, Springer, New York [electronic resource]; Unpublished material - protocols for the determination of parameter data by the supervisor.
Complementary literature:	Papers published in scientific journals in the field of food technology and nutrition related to the research topic pursued, i.e. Food Chemistry.

*(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