A COURSE SYLLABUS – DOCTORAL SCHOOL

REGARDING THE QUALIFICATION CYCLE FROM 2021 TO 2022

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-IV, semesters I through VIII
Discipline	Food and Nutrition Technology
Language of Course	Polish
Name of Course coordinator	Grzegorz Zaguła, PhD, Prof. UR
Name of Course lecturer	Grzegorz Zaguła, PhD, Prof. UR
Prerequisites	In-depth knowledge of food science and human nutrition. Ability to work in a food analysis laboratory, in-depth theoretical and practical knowledge of working with functional beverages.

BRIEF DESCRIPTION OF COURSE (100-200 words)
The subject is aimed at the acquisition by a doctoral student of knowledge in the search for and interpretation of world achievements concerning the subject of food technology and nutrition, with particular emphasis on the subject of own research related to functional beverages, their preservation, fortification and storage. Interpretation of hypotheses posed by other authors, their discussion and application to own research topic. Developing the ability to work in the laboratory, to develop one's own research hypotheses, to compose research methodologies and to translate the findings of one's own experimental work into a form of presentation and as published works, including popular science. The ability to disseminate one's own acquired knowledge and the results of one's own work to the sphere of the interface between science and economy, through their presentation in the framework of scientific discourses and professional meetings, including exhibitions at fairs and international conferences as well as internship trips. The ability to communicate factually and purposefully at the interface between science and everyday life, with a synthetic and audience-appropriate presentation of one's own research results together with their interpretation.

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.)	Know and understand			
1 **P8S_WG/1**	a broad theoretical knowledge and the current scientific achievements including the world ones in the area of food technology and nutrition, as well as general issues in the area of related disciplines, possesses knowledge on its place in the system of science allowing to define its importance in confrontation with other disciplines,	**P8S-WG**	seminar	oral statement, discussion

2. **P8S_WG/2**	trends in scientific research and recent discoveries in the scientific discipline of food and nutrition technology, including with a global reach,	**P8S-WG**	seminar	oral statement, discussion
3. **P8S_WG/3**	issues concerning the methodology of scientific research in the discipline of food and nutrition technology, principles of planning and conducting scientific research, using interdisciplinary research techniques and tools,	**P8S-WG**	seminar	oral statement, discussion
4. **P8S_WG/4**	the principles for dissemination of the results of scientific activity, including through open access by publishing their scientific output in open access journals,	**P8S-WG**	seminar	oral statement, discussion, presentation
5. **P8S_WK/3**	the basic principles for the transfer of knowledge into the economic and social sphere and for the commercialisation of the results of scientific activity and the know-how associated with these results through patent applications for their ideas,	**P8S_WK**	seminar	oral statement, discussion, presentation
Skills (no.)	Can			
1. P8S_UW/1	based on his/her knowledge from various fields of science, is able to identify and solve scientific research problems, define the aim, formulate hypotheses and the subject of scientific research, improve techniques, methods and research tools and make conclusions on the basis of scientific research results,	**P8S-UW**	seminar	oral statement, discussion
2. **P8S_UW/2**	be able to analyse and evaluate scientific research results in the discipline of food technology and nutrition, forming an opinion, including critical judgements, on this basis,	**P8S-UK**	seminar	oral statement, discussion
3. **P8S_UW/3**	transfer research results obtained in the scientific discipline of food and nutrition technology and related disciplines to the economic sphere, as well as disseminate them in the social sphere,	**P8S-UW**	seminar	oral statement, discussion
4. **P8S_UK/1**	actively participate in the international scientific community by presenting the results of their scientific activity	**P8S_UK**	seminar	oral statement, discussion

	in the field of food and nutrition technology,			
5. **P8S_UK/2**	write and prepare for print a scientific article or a scientific monograph, including popular science publications in the discipline of food and nutrition technology in Polish and foreign language,	**P8S_UK**	seminar	oral statement, discussion
6. **P8S_UK/3**	on the basis of their broad knowledge in the studied discipline of food and nutrition technology they are able to initiate scientific and professional debate in various environments, including in the international environment,	**P8S_UK**	seminar	oral statement, discussion
7. **P8S_UK/4**	actively participate in expert discussion panels in national and international environments,	**P8S_UK**	seminar	oral statement, discussion
8. **P8S_UO**	plan and carry out scientific research individually and in teams, both of national as well as and international dimension, playing various roles in them, including managerial ones,	**P8S_UO**	seminar	oral statement, discussion
9. **P8S_UU/1**	is able to independently plan and select appropriate methods, means and forms of organisation in designing educational situations in work with students, and to act effectively in favour of their own development and that of others,	**P8S_UU**	seminar	oral statement, discussion
Social competence (no.)	Is ready to			
1. **P8S_KK/1**	a critical assessment of scientific achievements in the discipline of food and nutrition technology, and a constant improvement of one's scientific competence,	**P8S-KK**	seminar	oral statement, discussion
2. **P8S_KK/2**	a critical assessment of one's own contribution to the development of the studied discipline,	**P8S-KK**	seminar	oral statement, discussion
3. **P8S_KK/3**	solving cognitive and practical problems using the knowledge possessed in the discipline of food and nutrition technology and related disciplines,	**P8S-KK**	seminar	oral statement, discussion
4. **P8S_KR**	conducting scientific and creative activity in an	**P8S-KR**		oral statement,

	independent manner, developing and maintaining the culture of research communities while respecting the principles of intellectual property protection,			discussion

LEARNING FORMAT – NUMBER OF HOURS

Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
1	-	-	-	-	30	0
2	-	-	-	-	30	0
3	-	-	-	-	30	0
4	-	-	-	-	30	0
5	-	-	-	-	30	0
6	-	-	-	-	30	0
7	-	-	-	-	30	0
8	-	-	-	-	30	0
total number of hours in the education cycle:					**240**	

METHODS OF INSTRUCTION

Semester I:

1. Multimedia presentation (to be chosen by the doctoral student as speaker) combined with discussion.
2. discussion within the framework of scientific problems prepared by the doctoral student from the discipline of technology
food and nutrition.
3. Activity in scientific discussion and ability to solve a theoretical problem.

Semester II:

1. Multimedia presentation (at the choice of the doctoral student as speaker) combined with discussion.
2. Discussion within the framework of scientific problems prepared by a doctoral student from the discipline of technology
food and nutrition, activity in scientific discussion and ability to solve the theoretical problem.
3. Preparation of a scientific publication by the doctoral student.

Semester III:

1. Preparation of a scientific research methodology.
2. Preparation and design of a test stand for testing mineral additives for functional beverages .
3. Design of a test bench for shelf-life extension studies.
4. Preparation of scientific speeches.
5. Undertake scientific discussions.

Semester IV:

1. Methodology of storage studies for functional beverages.
2. Study of preservative substances.
3. Principles and patterns of working in an international environment.
4 The development of original research creative work.
5. Principles of working in trade exhibitions and show fairs in the field of food technology.

Semester V:

1. Multimedia presentation (of the doctoral student's choice as speaker) combined with discussion.
2. Discussion within the framework of scientific problems from the discipline of food technology and nutrition prepared by the doctoral student, activity in scientific discussion and ability to solve a theoretical problem.
3. Preparation by the doctoral student of a scientific publication, participation in international

conferences, internship trips and trade fairs.
Semester VI:
1. Multimedia presentation (to be chosen by the doctoral student as speaker) combined with discussion.
2. Discussion within the framework of scientific problems from the discipline of food technology and nutrition prepared by a doctoral student, activity in scientific discussion and ability to solve a theoretical problem, preparation of a scientific publication by a doctoral student.
3. Participation in international conferences, internship trips and trade fairs.
Semester VII:
1. Multimedia presentation (to be chosen by the doctoral student as speaker) combined with discussion.
2. Discussion within the framework of scientific problems prepared by a doctoral student from the discipline of technology
food and nutrition, activity in scientific discussion and ability to solve a theoretical problem.
3. Preparation by a doctoral student of a scientific publication.
4. Participation in international conferences, internship trips and trade fairs
Semester VIII:
1. Multimedia presentation (to be chosen by the doctoral student as speaker) combined with discussion.
2. Discussion in the framework of scientific problems prepared by the doctoral student from the discipline of food technology and nutrition.
3. Activity in scientific discussion and ability to solve a theoretical problem.
4. Preparation of a scientific publication by the doctoral student.
5. Participation in international conferences, internship trips and trade fairs.

COURSE CONTENT

Course contents:
Semester I:
1. Principles of developing a doctoral dissertation in light of the Act on Higher Education.
2. Dissertation as a research task in the discipline of food and nutrition technology. 3.
3. Study of source literature of the subject.
4. Preparation of scientific speeches.
5. To undertake scientific discussions.

Semester II:
6. Principles of preparing scientific research results.
7. Principles of constructing research papers using laboratory results.
8. Principles and patterns of developing monographic articles.
9. Principles of development of original research creative works.
10. Principles of formulating the topic and concept of a research thesis with research methodology.

Semester III:
11. Preparation of research methodology.
12. Preparation and design of a test bench for testing mineral additives for functional beverages.
13. Design of a test bench for shelf life extension studies.
14. Preparation of scientific speeches.
15. Engage in scientific discussions.

Semester IV:
16. Methodology of functional beverage storage studies.
17. Study of preservative substances.
18. Principles and patterns of working in an international environment.
19. Development of original research creative works.
20. Principles of working in industry exhibitions and trade show exhibitions in the field of food technology.

Semester V:
21. Preparation of scientific research methodology.
22. Preparation and design of a test rig for evaluating the effect of natural acidity regulators on ionic matrix stability.
23. Preparation of scientific speeches.
24. To undertake scientific discussions.

Semester VI:
25. Preparation of scientific research methodology.
26. Formulation study of functional beverages.
27. Formulation principles and rules.
28. Development of original research creative works.
29. Principles of work in industry exhibitions and trade show exhibitions in the field of food technology.

Semester VII:
30. Preparation of a research dissertation.
31. Verification of possible shelf life and shelf life of beverages.
32. Preparing scientific speeches.
33. Undertake scientific discussions.

Semester VIII:
34. Preparing a scientific dissertation.
35. Assess the feasibility of producing an optimised functional beverage.
36. Development of original research, monographic, creative works.
37. Principles of working in industry exhibitions and trade show fairs in the field of food technology.

COURSE ASSESSMENT CRITERIA

The continuous work of the doctoral student in each semester and academic year shall be evaluated in terms of:
- substantive participation in seminar discussions;
- agreement on the topic of the dissertation with the supervisor;
- approval by the dissertation supervisor of a publication related to the dissertation;
- independent preparation and presentation of the paper;
- substantive participation in discussions during professional events, e.g. fairs, exhibitions and conferences including international ones;
- participation in an international internship;
- approval of the dissertation by the dissertation supervisor;

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 scientific research, does not expand knowledge, does not study the readings, does not participate in substantive discussion, does not meet scientific 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 student makes significant progress in scientific research, broadens knowledge, studies basic and supplementary literature, substantively participates in the discussion, fulfils all the

scientific duties); 81% - 90% - good plus, (the student makes significant progress in scientific research, systematically broadens knowledge, studies basic and supplementary literature, substantively participates in discussion, fulfils all the scientific duties); - 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)	**8 x 1 hrs. – 8 hrs.**
Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	**472 hrs.**
Total number of hours	**720 hrs.**
Total number of ECTS credits	**-**

INSTRUCTIONAL MATERIALS	
Compulsory literature:	1. GENERAL FOOD TECHNOLOGY / EDITED BY ELŻBIETA DŁUŻEWSKA AND KRZYSZTOF LESZCZYŃSKI, 2013, WARSAW: SGGW PUBLISHING HOUSE 2. HUMAN NUTRITION, FOOD AND NUTRITION INSTITUTE (WARSAW). PUBLISHER 3. SELECTED PROCESSES IN FOOD TECHNOLOGY / ELŻBIETA BILLER, AGNIESZKA WIERZBICKA 4. APANOWICZ J., METHODOLOGICAL DETERMINANTS OF SCIENTIFIC WORK: DOCTORAL DISSERTATIONS, HABILITATION THESES, WARSAW 2005
Complementary literature:	SCIENTIFIC ARTICLES RELATED TO THE DOCTORAL INTERESTS PROMOTED BY THE PROMOTER

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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