

Course name: Food Toxicology

COURSE NAME (capital letters)

ECTS	6
Course status	complementary
Course final assesement/evaluation of outcomes	exam
Prerequisites	passing the subjects of chemistry, biochemistry

Main field of study:

field of study name (capital letters)

Profile of study	General-academic
The code of studies (education level)	SI/SM (bachelor/master)
Semester of studies	summer and winter
Language of instruction	English

Course offered by:

Name of faculty offering the course	Faculty of Food Technology
Name of department offering the course	Department of Human Nutrition and Dietetics
Course coordinator	Barbara Borczak PhD. DSc. Eng., associate professor

Learning outcomes of the course:

Symbol of outcome	Description of learning outcome	Reference to	
		main field of study outcomes	discipline#

KNOWLEDGE – student knows and/or understands:

FT_W1	Has a knowledge of the natural pollutants presented in the food	TŻ1_W03 TŻ1_W05 TŻ1_W010	R
FT_W2	Characterize additives used in foods	TŻ1_W04 TŻ1_W05 TŻ1_W08 TŻ1_W09 TŻ1_W010	R
FT_W3	Can define the relationship between the occurrence of various food contaminants and potential health risks	TŻ1_W04 TŻ1_W05 TŻ1_W08 TŻ1_W09 TŻ1_W010 TŻ1_W15 TŻ1_W16	R

SKILLS – student is able to:

FT_U1	Has the ability to report and compare obtained results with the current regulations and	TŻ1_U03	R
FT_U2	Select and apply appropriate analysis methods to solve the problem of food quality and safety	TŻ1_U07	R

FT_U3	Able to perform basic analysis of the chemical composition and uses basic laboratory equipment	TŽ1_U11 TŽ1_U09	R
SOCIAL COMPETENCE- student is ready to:			
FT_K1	Is aware of the need for targeted education and self-improvement of the profession	TŽ1_K03	R
FT_K2	Understands the need to inform the public about the activities concerning the production of healthy food, and to promote the principles of rational nutrition according	TŽ1_K06	R
FT_K3	Able to interact and work in a team and manage a small team	TŽ1_K02	R

Teaching contents:

Lectures	30	hours
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Topics of the lectures	<ol style="list-style-type: none"> 1. Types of toxicity of the toxic substances, the factors affecting the toxicity of substances in the body 2. Naturally occurring toxic substances in food products: alkaloids glycosides, non-nutrients compounds, biogenic amines, poisons in macrofungies. 3. Food additives -characteristics 4. Substances forming sensory characteristics - colors, flavors 5. Artificial sweeteners 6. Food preservatives and antioxidants. 7. Food contaminants. nitrites, nitrates, nitrosamines 8. Heavy metals 9. Chlorinated hydrocarbons, dioxins, PCBs 10. Chlorinated polycyclic aromatic hydrocarbons, 11. Detergents 12. Pesticides 13. Residues of antibiotics and hormones 14. Microbiological contamination - mycotoxins 15. Bacteria that causes food poisoning
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Accomplished learning outcomes	<i>TŽ1_W03;TŽ1_W05;TŽ1_W04;TŽ1_W08;TŽ1_W09;TŽ1_W010;TŽ1_W15;TŽ1_W16;TŽ1_K02;TŽ1_K03;TŽ1_K06</i>
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Verification methods, rules and criteria of outcome assessment	<i>together with participation in the final assesment (60 %)</i>
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Classes	30	hours
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Topics of the classes	<ol style="list-style-type: none"> 1. Determination of tannins in food products 2. Determination of caffeine in coffee and tea 3. Analysis of soluble oxalates in food products 4. Investigation of synthetic pigments in food 5. Designation of selected preservatives and antioxidants 6. Determination of enriching substances 7. In vitro analyses of the impact of detergents on the action of digestive enzymes 8. Estimation of nitrates and nitrites intake with the diet 9. Food Packaging - Determination of free styrene in polystyrene 10. Exercise program completion and follow-up
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Accomplished learning outcomes TokZywZ_W01 TokZyw1_K01 TokZyw1_K02	<i>TŽ1_U03; TŽ1_U07; TŽ1_U09;TŽ1_U11; TŽ1_K02;TŽ1_K03;TŽ1_K06</i>
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Verification methods, rules and criteria of outcome assessment	<i>Attendance at at least 8 classes. 2 absences are allowed, but must be justified. Share in final grade 40%.</i>
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Seminars	...	hours
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Topics of the	
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seminars	
Accomplished learning outcomes	<i>symbol of learning outcomes of the seminars</i>
Verification methods, rules and criteria of outcome assessment	<i>together with participation in the final assessment (in %)</i>

References:

Basic	<i>Helferich W., Winter C.K., 2000. Food Toxicology. CRC Press Publishing, USA Altug T., 2003. Introduction to Toxicology and Food. CRC Press Publishing, USA Nikonorow M., Urbanek-Kartowska B., 1987, Toksykologia żywności, PZWŁ W-wa</i>
Supplementary	<i>Młodecki H., Piekarski L., 1982, Zagadnienia zdrowotne żywności. PZWŁ W-wa Gertig H., 1996, Żywność a zdrowie. Wyd. Lek. PZWŁ W-wa. Toksykologia – przewodnik do ćwiczeń (skrypt) Wyd. SGGW Warszawa 2010.</i>

Structure of learning outcomes:

Discipline: R – Agricultural science - discipline nutrition and food technology	6	ECTS**
Discipline: # (provide appropriate symbol - if the course relates to more than one academic discipline)		ECTS**

Structure of student activities:

Contact hours	60	hours	2,4	ECTS**
including:				
lectures	0	hours		
classes and seminars	30	hours		
consultations	2	hours		
participation in research	0	hours		
mandatory traineeships	0	hours		
participation in examinations	1	hours		
e-learning	30	hours	1,2	ECTS**
student own work	92	hours	3,6	ECTS**

Syllabus valid from the academic year 2021/2022

* where 10 hours of classes = 1 ECTC (in case of 15 h → 2 ECTS)

** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes

academic discipline code: RZ - animal science and fishery, PB - biological sciences, etc.