SYLLABUS

REGARDING THE QUALIFICATION CYCLE **FROM 2022 TO 2023**

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	**Food Toxicology**
Course/Module code *	
Faculty (name of the unit offering the field of study)	Institute of Food Technology and Nutrition, College of Natural Sciences
Name of the unit running the course	Department of Chemistry and Food Toxicology
Field of study	Food Technology And Human Nutrition
Qualification level	I degree
Profile	*academic*
Study mode	*Full-time*
Year and semester of studies	*2nd year, 4th semester*
Course type	*Lecture and laboratory classes*
Language of instruction	English
Coordinator	dr hab. inż. Małgorzata Dżugan, prof. UR
Course instructor	dr hab. inż. Małgorzata Dżugan, prof. UR dr inż. Monika Tomczyk

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Colloquia	Lab classes	Seminars	Practical classes	Internships	others	ECTS credits
4	10			20				Reports of conducted experiments	5

1.2. Course delivery methods
- conducted in a traditional way as laboratory classes
- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)
pass with a grade

2. PREREQUISITES

Completed course: food chemistry

Ability to work in a laboratory.

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1. Course/Module objectives

O1	Students get to know the bases of toxicological evaluation of chemical substances as well as the causes and consequences of the presence of chemical contaminants, radiological and biological agents in food.
O2	Students gain skills to identify selected chemical contaminants in food products and the correct interpretation of the results of toxicological analysis in terms of meeting the requirements of the applicable regulations.

3.2. COURSE/MODULE LEARNING OUTCOMES (TO BE COMPLETED BY THE COORDINATOR)

Learning Outcome	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes
LO_01	Student has knowledge about the contaminants present in food and their effects on the human body.	K_W03
LO_02	Student analyzes the transformation of food ingredients during its processing.	K_W03
LO_03	Student has knowledge about the basic analytical methods using in food quality control and performs basic toxicology analysis.	K_U05, K_U06
LO_04	Student is aware of professional responsibility for the production of high-quality food	K_U05
LO_05	Student is able to work in a group adopting to different roles.	K_K02

3.3. Course content (to be completed by the coordinator)

A. Lectures

Content outline
Poisons and poisoning. Criteria for toxicological evaluation. Legislation in the field of food safety.
Natural toxic substances and anti-nutritive substances in products.
Foreign substances of environmental origin in food. Compounds present in food as a consequence of the use of chemicals in agriculture - fertilizers, residues of substances used in farming, medicine and fodder production.
Harmful substances in food produced by the action of microorganisms.
Toxicological evaluation of the safety of food additives.
Unfavourable substances formed during cooking of food.
The official control of food quality in Poland.

B. Classes, tutorials/seminars, colloquia, laboratories, practical classes

Content outline
Estimating the heavy metals and polychlorinated hydrocarbons intake depending on the daily diet composition.
The impact of technological processes on the content of thiocyanate in vegetables.
Determination of oxalic acid content in tea and coffee.
Determination of nitrate and nitrite residues in meat.
Detection of synthetic dyes in food products. Recovery of flavoring substances from food.
Determination of preservatives in processed fruit and vegetable products. Detection of synthetic antioxidants in oils. Determination of phosphoric acid content in cola type beverages.
The control of chloride and formaldehyde migration from package to food.
Evaluation of hydroxymethylfurfural in honey during thermal processing.

3.4. Methods of Instruction
e.g.
Lecture: a problem-solving lecture
Laboratory classes: designing and conducting experiments

4. Assessment techniques and criteria
Laboratory: active participation in classes, passing written reports of performed exercises, passing two partial tests

Lecture: written final test

4.1 Methods of evaluating learning outcomes

Learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes,...)
LO_01	Written final test, discussion during classes	Lecture, classes
LO_02	Written final test, discussion during classes	Lecture, classes
LO_03	Observation during classes	classes
LO_04	Report of experiment, observation during classes	Lecture, classes
LO_05	Observation during classes	classes

4.2 Course assessment criteria

GRADE 3.0 51-65%, GRADE 3.5 66-75%, GRADE 4.0 76-85%, GRADE 4.5 86-95%, GRADE 5.0 96-100%

5. Total student workload needed to achieve the intended learning outcomes – number of hours and ECTS credits

Activity	Number of hours
Scheduled course contact hours	30
Other contact hours involving the teacher (consultation hours, examinations)	15
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	80
Total number of hours	125
Total number of ECTS credits	5

* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

Number of hours	

Internship regulations and procedures	

7. Instructional materials

Compulsory literature: Instructions to the experment   Shibamoto t., bjeldanes l., introduction to food toxicology, academic press, 2009
Complementary literature: Chosen scientific papers

Approved by the Head of the Department or an authorised person