

SUBJECT DESCRIPTION

1. Information on the study programme

1.1 Academic institution	UNIVERSITY OF ORADEA
1.2 Faculty	FACULTY OF ENVIRONMENTAL PROTECTION
1.3 Department	ENGINEERING OF FOOD PRODUCTS
1.4 Field of study	CONTROL AND EXPERTISE OF FOOD PRODUCTS
1.5 Cycle of study	BACHELOR
1.6 Study programme/Qualification	TECHNOLOGY OF AGRICULTURAL PRODUCTS PROCESSING/ENGINEER

2. Information on the discipline

2.1 Name of discipline	FOOD CHEMISTRY						
2.2 Course holder	Associate prof. dr. Purcărea Cornelia						
2.3 Seminar/Laboratory/Project holder	Lecturer dr. Hîlma Elena						
2.4 Year of study	I	2.5 Semester	1	2.6 Type of evaluation	E	2.7 Regime of discipline	C

(C) Compulsory; (O) Optional; (E) Elective

3. Total estimate time (hours per semester of didactic activities)

3.1 Number of hours per week	4	out of which: 3.2 course	2	out of which 3.3 seminar/laboratory/project	2
3.4 Total hours in the curriculum	56	out of which: 3.5 course	28	out of which 3.6 seminar/laboratory/project	28
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					30
Additional documentation in the library/ on specialised electronic platforms and in the field					20
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					10
Tutorship					7
Examinations					2
Other activities.....					
3.7 Total hours of individual study	69				
3.9 Total hours per semester	125				
3.10 Number of credits	5				

4. Prerequisites (where appropriate)

4.1 curriculum	Notions of organic and inorganic chemistry and structural biochemistry
4.2 competences	

5. Conditions (where appropriate)

5.1. related to course	Classroom 122	Faculty for Environmental Protection
5.2. related to seminar/laboratory/ project	Laboratory 009	Faculty for Environmental Protection

6. Specific competences acquired	
Professional competences	<p>C1. Operation of equipment in food production units. C1.1. Description and use of basic concepts, theories and methods for food engineering on the structure and properties of food components and contaminants, the transformations that they undergo during processing, the devices, equipment and technologies in food industry (knowledge provided by disciplines such as: general, inorganic, organic chemistry, food chemistry, biophysics, biochemistry, physical and colloidal chemistry, devices, equipment and technologies in the food industry) C1.3. Application of basic principles and methods in food engineering to solve technological problems related to the operation of the food industry equipment.</p> <p>C4. Quality control of food, raw and auxiliary materials. C4.1. Description and use of basic concepts, theories and methods used in quality control of food products, on the chemistry of compounds that determine food quality, the transformations that they undergo during processing, transport and storage, the apparatus and methods for determining and analyzing of these compounds (knowledge provided by the disciplines of general, inorganic, organic chemistry, food chemistry, biochemistry, analytical chemistry, instrumental analysis, microbiology, hygiene, food additives, food quality control)</p> <p>C5. Expertise of food, raw and auxiliary materials. C5.1. Description and use of basic concepts, theories and methods used in food expertise related to chemical compounds that determine the quality and traceability of food products, the transformations that they undergo during processing, transport and storage, the apparatus and methods for determining and analysis of these compounds and the relevant legislation (knowledge provided by the disciplines of general, inorganic, organic chemistry, food chemistry, biochemistry, analytical chemistry, instrumental analysis, microbiology, hygiene, food additives, food quality control)</p>

7. Objectives of discipline (coming from the specific competences acquired)

7.1 General objective	provide students with knowledge of the main constituent substances of living matter in general and of food and agricultural products in particular, knowledge of the main food groups and some food processing during processing, storage, and transport as well as their metabolism in the body.
7.2 Specific objectives	<ul style="list-style-type: none"> ✓ Knowledge of organised a food chemistry laboratory, preparation of the usual solutions, knowledge of the qualitative and quantitative analysis techniques of the main components of agro-food products. Know and communicate aspects of composition, stability, preservation, analysis, falsification of food. ✓ Perform laboratory analyzes specific to food chemistry.

8. Content*/

8.1 Course	Methods of teaching	No. of hours/Remarks
1. Defining foods, nutrition, nutrition.	ppt presentation	4
2. Sciences involved in the study of foods. Using bibliographic sources for drafting papers	ppt presentation	2
3. Basic knowledge in food science: falsification, authenticity, quality, safety, security.	ppt presentation	2
4. Food classification criteria. Chemical composition of food.	ppt presentation	2
5. Water. Water activity	ppt presentation	2.
6. Minerals in food composition	ppt presentation	2.
7. Predominant protein content food - meat, fish	ppt presentation	2.
8. Predominant protein content food - milk, eggs	ppt presentation	2

9. Predominant lipid foods - vegetable fats, animal fats	ppt presentation	2
10. Predominantly sugary foods - cereals, sugar and sucrose	ppt presentation	2
11. Vegetables, fruits	ppt presentation	2
12. Alcoholic and non-alcoholic beverages	ppt presentation	2.
13. Thermal treatments and their influence on food quality	ppt presentation	2.
14. Modern methods of preserving food products	ppt presentation	2
1.I.F.Dumitru - Biochimie - Editura Didactică și Pedagogică, București 1980. 2.I.F.Dumitru, Dana Iordăchescu – Introducere în enzimologie- Editura Medicală, București, 1981. 3.G.Neamțu - Biochimie alimentară- Ed.Ceres, București, 1997 4.C.Purcărea – Biochimie agroalimentară. Edit.Univ. Oradea, 2005. 5.C.Socaciu - Chimie alimentelor- Ed.Academic.Press, Cluj-Napoca, 2003.		
8.2 Seminar	Methods of teaching	No. of hours/ Remarks
8.3 Laboratory		
1. General laboratory safety rules and regulations for chemistry laboratories.	signing the work safety training table	2
2. How to organize a food chemistry laboratory	Application. experiments,	2
3. Harvesting food samples	Application. experiments,	2
4. Preparing food samples for chemical analysis	Aplicații, experimente	2
5. Sensory evaluation of foods: color, texture, flavor	Application. experiments,	2
6. Determination of food moisture. Moisture of cheese, milk powder	Application. experiments,	2
7. Determination of the content in mineral salts of foodstuffs. Ashes from honey	Application. experiments,	2
8. Determinations to establish the freshness of some foods: pH; acidity	Application. experiments,	2
9. determination of pepperoni dyes	Application. experiments,	2
10. Determination of salt content of bread	Aplicații, experimente,	2
11. Determination of SO ₂ from white wine	Application. experiments,	2
12. Peroxidase test to check the blanching of vegetables	Application. experiments,	2
13. Determining the vitamin C content of fruit juices	Application. experiments,	2
14. Knowledge verification	Determination and calculation of some parameters	2
8.4 Project		
References Dana Iordăchescu, I.F.Dumitru-Biochimie practică – Tipografia Universității, București, 1980. 2.G.Neamțu - Lucrări Practice de biochimie alimentară- Tipo Agronomia, Cluj-Napoca, 1997 3.N.Popescu, S.Meica - Noțiuni și elemente practice de chimie analitică sanitar veterinară, Ed.Diacon Coresi, București, 1993. 4.Cornelia Purcărea - Biochimie alimentară practică, Ed.Univ.Oradea,2003. 5..C.Socaciu, O.Bobiș - Caiet de lucrări practice, Chimia alimentelor, Ed. Academic Press, Cluj-Napoca, 2003.		

* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme

- The discipline is designed to provide students with a minimal amount of knowledge of applied chemistry in the field of food. Laboratory work also exemplifies how familiar work methods are applied but with direct applications for food control laboratories on the technological flow or in laboratories accredited by food control, but also for control bodies - DSV, DSP, OPC

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	For grade 5 – knowledge of the material 50% For grade 10 – knowledge of the material in 100% (the student presented the evidence of studied references)	Presentation of a topic from agrifood biochemistry Summative Evaluation - Final exam - written or oral	10% 70%
10.5 Seminar	-	-	-
10.6 Laboratory	Test with 5 questions at the end of every laboratory activity	Continuous assessment Evaluation of laboratory	10% 10%
10.7 Project	-	-	-
10.8 Minimum standard of performance			
<ul style="list-style-type: none"> • Knowledge of the main component of food and agricultural products, knowledge of the main biochemical transformations in food during processing, storage, and transport . To know the Chemical composition of the main food groups • Prepare usual solutions, to know the qualitative and quantitative analysis technique, for the main components of foods 			

Date of completion

Signature of course holder**

Signature of seminar
laboratory/project holder **

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Date of approval in the department

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** - Name, first name, academic degree and contact details (e-mail, web page, etc) will be specified.