UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
Calea Mănăştur 3-5, 400372, Cluj-Napoca
Tel: 0264-596.384, Fax: 0264-593.792
www.usamvcluj.ro

No._____of _____ **USAMV-CN form-0705020207**

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	**University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca**
1.2. Faculty	**Food Science and Technology**
1.3. Department	**Food Engineering**
1.4. Field of study	**Food Engineering**
1.5. Education level	**Master**
1.6. Specialization/ Study programme	**Food Processing Systems and Quality Control**
1.7. Form of education	**Regular studies**

2. Information on the discipline

2.1. Name of the discipline	**Chemical changes in food and analysis of plant products**							
2.2. Course coordinator				**Lecturer dr. Andruța Elena Mureșan**				
2.3. ~~Seminar~~/ laboratory/ ~~project~~ coordinator				**Lecturer dr. Andruța Elena Mureșan**				
2.4. Year of study	**II**	2.5. Semester	**III**	2.6. Type of evaluation	**Exam**	2.7. Discipline status	Content[2]	**DS**
							Compulsoriness [3]	**DI**

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. ~~seminar~~/ laboratory/ ~~project~~	2
3.4. Total number of hours in the curriculum	56	out of which: 3.5. lecture	28	3.6. ~~seminar~~/ laboratory/ ~~project~~	28

Distribution of the time allotted	hours
3.4.1. Study based on book, textbook, bibliography, and notes	30
3.4.2. Additional documentation in the library, specialized electronic platforms, and field	30
3.4.3. Preparing ~~seminars~~/ laboratories/ ~~projects~~, ~~subjects~~, ~~reports~~, ~~portfolios~~, and ~~essays~~	30
3.4.4. Tutorials	10
3.4.5. Examinations	10
3.4.6. Other activities	9

3.7. Total hours of individual study	119
3.8. Total hours per semester	175
3.9. Number of credits[4]	7

4. Prerequisites (is applicable)

4.1. curriculum-related	Basic notions of food chemistry and biochemistry
4.2. skills-related	The student must have the necessary knowledge for proper handling of chemical reagents, glassware, utensils, and laboratory equipment

5. Conditions (if applicable)

5.1. for the lecture	Classroom, equipped with: blackboard, video projector, and computer In the case of carrying out online didactic activities, the teaching methods will be adapted
5.2. for the ~~seminar~~/ laboratory/ ~~project~~	Laboratory equipped with laboratory equipment, glassware, utensils, and reagents In the case of carrying out online didactic activities, the teaching methods will be adapted

6. Specific competences acquired

Professional competences	C5.2. Explanation and interpretation of methods for assessing the quality of agri-food products C5.3. Use of specific methodology for evaluation and control of agri-food products
Transversal competences	CT1. Responsible execution of laboratory tests; analytical and critical thinking in interpreting results

7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	Allows students to understand the nature of research, the differences between qualitative and quantitative research, and to reflect on the value of different pathways to knowledge
7.2. Specific objectives	Allows students to use research tools appropriately and to interpret and critically evaluate data they obtain

8. Contents

8.1. LECTURE	Teaching methods	Notes
Nutritional composition Cereal proteins: challenges and solutions in development of food relevant to consumers, biochemical changes that occur during processing. Lipids from oilseeds, biochemical changes that occur during processing	Participatory lecture, debate, exemplification	6 lectures
Fruit and vegetable sugars Physico-chemical properties of ultrasound-affected fruit and vegetable juices		4 lectures
Composition of bakery / pastry and confectionery products, biochemical changes that occur during processing.		2 lectures
Composition of fermentative products, biochemical changes that occur during processing. Volatile compounds derived from fermentation		2 lectures

8.2. PRACTICAL WORK	Teaching methods	Notes
Determination of biologically active compounds in plant raw materials and derived products	Presentation, explanation, demonstration, case study	4 laboratory works
Determination of nitrate and nitrite content of fruit, vegetables and products obtained by processing them		3 laboratory works
Determination of food coloring and preservatives in plant products		3 laboratory works
Determination of pigments in vegetable raw materials and derived products		3 laboratory works
Assessing the acquired knowledge	-	1 laboratory works
Compulsory bibliography: 1. Mohammad Shamsher Ahmad, Mohammed Wasim Siddiqui. (2015). Postharvest Quality Assurance of Fruits, Springer; 2. Marutoiu Constantin, Maria Tofană, Analiza micitoxinelor, Ed. Napoca Star, Cluj Napoca, 2001;		
Optional bibliography: -		

9. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field

In outlining the course content and practical work were considered recommendations of food industry employers.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Logical, correct, and coherent application of acquired notions	Exam - Supporting a specific project	70%
10.5. ~~Seminar~~/ Laboratory	Ability to perform tests in a chemical testing laboratory Ability to analyse and interpret test results	Verification of skills to perform methods of analysis	30%
10.6. Minimum performance standards			
Execution of a laboratory test Elaboration of a test report			

[1] Education levels-choose of the three options-Bachelor/ Master/ Ph.D.

[2] Discipline status (content)-or the undergraduate level, choose one of the options-**FD** (fundamental discipline), **BD** (basic discipline), **SD** (specific discipline-food engineering), **UO** (discipline based on the university's options).

[3] Discipline status (compulsoriness)-choose one of the options-**CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

[4] One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on
08.09.2021

Course coordinator
Lecturer dr. Andruța Elena Mureșan

Laboratory work/ ~~seminars~~ coordinator
Lecturer dr. Andruța Elena Mureșan

Course coordinator
Prof. univ. dr. Sevastiţa Muste

Approved by the Department on
22.09.2021

Head of the Department
Prof. Dr. Sevastița Muste

Approved by the Faculty Council on

Dean
Prof. Dr. habil. Elena Mudura

28.09.2021