UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No_____from _____ **Form code USAMV–CN-0702030113**

COURSE DESCRIPTION

1. Information on the program

1.1. Higher Education Institution	**University of Agricultural Sciences and Veterinary-Medicine Cluj-Napoca**
1.2. Faculty	**Food Science and Technology**
1.3. Department	**Food Science**
1.4. Study field	**Food Engineering**
1.5. Level field[1)]	**Bachelor**
1.6. Specialization/ Study Program	**Control and expertise of food products / CEPA**
1.7. Teaching Form	**Regular studies**

2. Information on the discipline

2.1. Name of the course	**Food adulteration and authentication 2**							
2.2. Course leader				Lecturer PhD Anca Corina Fărcaş				
2.3. Coordinator of laboratory activity				Lecturer PhD Anca Corina Fărcaş				
2.4. Year of study	III	2.5. Semester	VI	2.6. Type of evaluation	Summative	2.7. Course regime	Content [2]	DS
							Level of compulsory [3]	DI

3. Total estimated time (teaching hours per semester)

3.1. Number of hours/week – frequency form	4	of which : 3.2. course	2	3.3. seminary/ laboratory/ project	2
3.4. Total hours in the curricula	56	of which: 3.5.course	28	3.6.seminary/laboratory	28
Distribution of time					Hours
3.4.1.. Study based on handbook, notes, bibliography					15
3.4.2. Extra documentation in the library, on specific electronic platforms and on field					14
3.4.3. Preparation of seminaries/ laboratories/ projects, themes, papers, portfolies and essays					5
3.4.4.Tutorial					5
3.4.5. Examination					3
3.4.6. Other activities					2
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of ECTS[4]	4				

4. Pre-conditions (if applicable)

4.1. of curriculum	Physical and colloidal chemistry, Biochemistry, Food chemistry
4.2. of competences	Identification, description and appropriate use of specific concepts of food science and food safety

5. Conditions (if applicable)

5.1. of course development	Projector, ppt presentation
5.2. of seminary/laboratory/ project development	Laboratory with appropriate analytical equipment, glassware, consumables

6. Specific acquired competences

Professional competences	C4.1. Interpretation of the legislation in the field of the food industry, for the strict observance of the principles and regulations in force regarding the authentication of food products C1.2. Explanation and interpretation of concepts, processes, models and methods in food science, using basic knowledge of the composition, structure, properties and transformations of food components and their interaction with other systems throughout the agri-food chain C1.3. Application of basic principles and methods in food science to address food authenticity issues, including those related to food safety
Transversal competences	CT1 Applying strategies of perseverance, rigor, efficiency and responsibility in work, punctuality and taking responsibility for the results of personal activity, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the principles, norms and values of the code of professional ethics in the food field. CT3 Efficient use of various learning paths and techniques - training for the acquisition of bibliographic and electronic database information both in Romanian and in an international language, as well as assessing the need and usefulness of extrinsic and intrinsic motivations of continuing education.

7. Subject objectives (as a result of the specific acquired competences)

7.1. Subject general objectives	Rationalizing new trends for authentication of foodstuffs and in the analytical techniques used for their analysis
7.2. Specific objectives	The European legislative framework for authentification of foodstuffs Identification of the marker compound using in authentification of foodstuffs (geographical origin, botanical origin, species/variety, the technology for obtaining, age) Advanced analytical techniques for composition of foodstuffs

8. Contents

8.1.COURSE **Number of hours – 28**	Methods of teaching	Notes (1 lecture = 2 hours)
Authentication of milk and milk products and methods for identifying counterfeits	Lecture, heuristic conversation, debate, algorithmic, case study, directed observation	1 lecture
Authentication of meat and meat products and methods of identifying counterfeits		2 lectures
Counterfeiting of food products - case studies		2 lectures
Authentication of bio / eco products		2 lectures
Advanced techniques for identifying counterfeits. Case studies		2 lectures
Traceability in the food chain- legislative framework, system implementation, RASFF		2 lecture
PDO, PGI, TSG products – legislations and criteria		2 lectures
Trends in authenticity of foodstuffs		1 lecture

8.2. PRACTICAL WORK **Number of hours – 28**		1 lab work (2 hours / work)
Authentication of honey bees. Determination of hydroxymethylfurfural in honey - EC 110/2001	Conversation, argumentation, debate	1
Analysis and identification of honey adulterated with substances which corrects consistency. Identification of heat-treated honey	Debate, algorithmic, case study, heuristic conversation	1
Detection of milk and dairy products adulterations		1
Authentication of fruit juices. Identification of synthetic dyes	Learning by discovery, debate, case study, conversation, argumentation	2
Case study on the authentication of eco / bio products		1
Classical and modern methods of essential oils		2

extraction – Extraction of essential oils from various aromatic or medicinal plants (hydrodistillation) Authentication of essential oils from various aromatic or medicinal plants (gas-chromatography) PDO, PGI, TSG products – Case study Methods of falsifications of plant and animal food products - case studies (eg labeling) Knowledge verification.		1 2 2 1

Compulsory Bibliography:

1. Bulancea, M., Răpeanu, G., *Autentificarea şi identificarea falsificărilor produselor alimentare*, 2009, Ed. Didactică şi Pedagogică, Bucureşti.

Facultative Bibliography:

1. Lees, M., Food authenticity and traceability, 2009, CRC Press, Washington, DC
2. Râpeanu, G., Controlul falsificărilor produselor alimentare, 2010, Ed. Didactică şi Pedagogică, Bucureşti
3. Da-Wen Sun (ed.), Moderns Techniques for Food Authentication, 2008, Academic Press

9. Correlations between the subject against the expectations of the epistemic community representatives, of the professional associations and employers' representatives in the domain

Course content is congruent with the applications of professional national specific companies.
In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems, teachers attend the different conferences/workshops/seminars/round tables, where they meet with specialists from the private sector of food industry and with teachers from other higher education institutions in the country. Meetings aimed identifying the needs and expectations of employers in the field and to coordinate the curricula with similar programs in other higher education institutions.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation methods	10.3. Percent of the final grade
10.4. Course	Application logic, consistency and correct concepts complaints Knowledge of criteria used in food authentication	Continuous assessment (Evaluation of the answers given to the topics on the exam)	65%
10.5. Seminary/Laboratory	Ability to perform physico-chemical analyzes and interpreting appropriate the result obtained	1 continuous assessment (Practical assessment of professional skills)	35%
10.6. Minimal standard of performance			
Solving a concrete problem / case study regarding the authentication / falsification of food products including the argumentation of the applied methods, techniques, procedures and / or instruments. Carrying out an individual project by efficiently using relevant and current documentation sources and resources (including internet, databases, online courses, etc.). Obtaining the pass mark at the knowledge verification at the end of the laboratory works is a condition of graduation			

[1] Level of study- to be chosen one of the following - Bachelor/Post graduate/Doctoral

[2] Course regime (content) – for bachelor level it will be chosen one of the following - **DF** (fundamental subject), **DD** (subject in the domain), **DS** (specific subject), **DC** (complementary subject).

[3] Course regime (compulsory level) - to be chosen one of the following - **DI** (compulsory subject), **DO** (optional subject), **DFac** (facultative subject)

[4] One ECTS is equivalent with 25-30 de hours of study (didactical and individual study).

Course coordinator
Lecturer. PhD. Anca Corina Fărcaș

Laboratory work/seminar coordinator
Lecturer. PhD. Anca Corina Fărcaș

Filled in on
10.09.2021

Subject coordinator
Lecturer. PhD. Anca Corina Fărcaș

Approved by the Department on
22.09.2021

Head of the Department
Prof. dr. Ramona Suharoschi

Approved by the Faculty Council on
28.09.2021

Dean
Prof. dr. Elena Mudura