SUBJECT OUTLINE

1. Information on the programme

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. Field of study	Engineering of Food Products
1.5.Cycle of study[1]	Master (English)
1.6.Specialization/ Study programme	Gastronomy, Nutrition and Dietetics
1.7. Form of education	Full time (IF)

2. Information on the discipline

2.1. Name of the discipline	Biological active compounds							
2.2. Course coordinator				**Prof.dr. Andreea Stănilă/ Prof.dr. Sonia Socaci**				
2.3. Seminar/ laboratory/ project coordinator				**Prof.dr. Sonia Socaci**				
2.4. Year of study	I	2.5. Semester	**I**	2.6. Type of evaluation	continue	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	3	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	1
3.4.Total number of hours in the curriculum	42	Out of which: 3.5.lecture	28	3.6.seminar/laboratory	14
Distribution of the time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					20
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4.Tutorials					15
3.4.5.Examinations					5
3.4.6. Other activities					
3.7. Total hours of individual study	55				
3.8. Total hours per semester	125				
3.9. Number of credits[4]	5				

4. Prerequisites (is applicable)

4.1. curriculum-related	Food Chemistry, Food biochemistry, Physical and colloid chemistry
4.2. skills-related	Food analysis, Food additives

5. Conditions (if applicable)

5.1. for the lecture	The course is interactive and includes interferences between chemistry and biochemistry, as well food and nutrition. MSc students may participate in discussions and ask questions regarding the course content and applications.
5.2. for the seminar/ laboratory/ project	Seminars and project are conducted on topics related course in conjunction with the information contained in progress, stimulating independent thinking and individual work of students. Learning outcomes are discussed with students their relevance for specific skills training, professional and transversal.

6. Specific competences acquired

Professional competences	Evaluation, processing and interpretation of human nutrition data • Use of specialized knowledge for the evaluation, processing and interpretation of data on human nutrition • Use of specific methodology for evaluating and interpreting data related to human nutrition • The use of criteria and methods for evaluating and interpreting data related to human nutrition in the conditions of concrete situations
Transversal competences	Achievement of complex, interdisciplinary, individual projects • Execution of complex professional tasks, in conditions of autonomy and professional independence

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

7.1. Overall course objective	The course has an interdisciplinary structure addressing biochemical issues in nutrient composition, structure and change them during food processing and storage, and nutrients, ingredients bioavailability, in relation to their nutritional and energetic value. The seminars aim the analysis of food, nutrient composition, the components of metabolic regulation and ingredients sensorial properties (spices, dyes, flavors). The individual project is chosen by students, following the objectives mentioned, it aims the stimulation of individual thinking, study and presentation of a customized food variants of preparation, keeping its sensory qualities, biochemical and functional / bioavailability.	
7.2. Specific objectives	Knowledge of different classes of biologically active compounds and their main representatives Absorption and metabolism of secondary plant metabolites.	

Contents

8.1.Courses **Number of hours – 28**	Teaching methods	Notes
1. Phenols, polyphenols and tannins - classification, biosynthesis	Lecture, heuristic conversation, problematization, algorithmization, case study, guided observation	4
2.Sulfur compounds - glucosinolates, biosynthesis, beneficial effects on health		4
3.Terpenes - biosynthetic mechanisms, effects on human health		4
4.Alkaloids, acetylene and psoralen compounds - diffusion, biosynthesis and bioactivity		4
5.Secondary metabolites in fruits, vegetables, beverages and other functional compounds of vegetable products		
6.Absorption and metabolism of functional secondary metabolites		8
		4

8.2. SEMINARS and Project Preparation **Number of hours – 14**	Conversation, argumentation, problematization	
Evaluation and determination of the daily intake of biologically active compounds present in the personal diet		12
Verification of knowledge .	Problematization, algorithmization, case study, heuristic conversation	2

Bibliography (Compulsory) Crozier, A., Clifford M.N., Ashihara H., Plant Secondary Metabolites – Occurrence, structure and role in human diet, 2006, Blackwell Publishing
Bibliography(Optional)*:* 1.Handa S.S. et al, Extraction technologies for medicinal and aromatic plants, 2008, International Center for Science and High Technology, Trieste 2.Nielsen, S.S., Food Analysis, third edition, 2003, Kluwer Academic/Plenum Plubisher

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

The lectures and practical seminars provide necessary and sufficient information to be applied in research laboratories specialized in food biochemistry, biotechnology and nutrition.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Acquisition of new knowledge and systematic processing of information	Continuous assessment by questionnairies and project verification	30%
10.5. Seminar/Project	The evaluation of the systematic approach of recent data collected by documentation (books and articles from mainstream information) Presentation of collected data.	Presentation of the project comprised cf a standard default in Word format Project presentation in PowerPoint format	70%
10.6. Minimum performance standards			
Assessment of knowledge and skills acquired by students is carried out according to Article 144 / 3 of from the Education Law, by marks from 10 to 1, mark 5 certifying the acquisition of minimal skills related to the subject and exam pass (acceptance). Getting the minimum mark for the knowledge and skills acquired by students is conditioned by the presentation of the individual project, based on the of subject topic.			

[1] Cycle of studies- choose of the three options: Bachelor/Master/Ph.D.

[2] Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines 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).

Course coordinator

Filled in on 7.09.2021

Prof. Dr. Andreea Stanila/

Prof.dr. Sonia Socaci

Laboratory work/seminar coordinator
Prof. Dr. Sonia Socaci

Subject coordinator

Prof.dr. Adriana Păucean/

Prof.dr. Ramona Suharoschi

Approved by the Department on 22.09.2021

Head of the Department

Prof.dr. Ramona Suharoschi

Dean

Approved by the Faculty
Council on
28.09.2021

Prof.dr. Elena Mudura