No._____of _____ **USAMV form 0702040102**

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	Bachelor
1.6.Specialization/Study programme	Control and expertise of food products
1.7. Form of education	Full time

2. Information on the discipline

2.1.Name of the discipline	FUNCTIONAL FOODS 1							
2.2.Course coordinator	**Associate professor PhD. DorinŢibulcă**							
2.3.Seminar/ laboratory/ project coordinator	**Lecturer PhD. Anca Fărcaş**							
2.4. Year of study	IV	2.5. Semester	VII	2.6. Type of evaluation	continuous	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	28
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					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolio sand essays					20
3.4.4.Tutorials					9
3.4.5.Examinations					10
3.4.6. Other activities					0
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits[4]	5				

4. Prerequisites (is applicable)

4.1. curriculum-related	Food biochemistry, Food microbiology, Food technologies
4.2.skills-related	The identification, description, and appropriate use of the terms specific to the food science and food safety and leading the engineering processes.

5. Conditions (if applicable)

5.1.for the lecture	The course is interactive, students can ask questions regarding the content of lecture.Academic discipline requires compliance withthe start andendof the course. We do not allow any other activities during the lecture, mobile phones will be turned off. In the case of carrying out didactic activities online, the teaching methods will be adapted.
5.2.for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.

	In the case of carrying out didactic activities online, the teaching methods will be adapted.

6. Specific competences acquired

Professional competences	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. C1-5. Elaboration of technological projects on the agri-food chain, scientifically based, in order to improve the existing performances.
Transversal competences	CT1. Applying strategies of perseverance, rigor, efficiency and responsibility at 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 field of food, the efficient use of various ways and techniques of learning - training for the acquisition of information from bibliographic and electronic databases, as well as the evaluation of the necessity and usefulness of extrinsic and intrinsic motivations of continuous education.

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

7.1.Overall course objective	Development of general practical skills; Acquiring basic knowledge about the technology of obtaining functional foods and their role in human health.
7.2.Specific objectives	Acquiring knowledge about the intestinal microbiota Notions about probiotics - prebiotics - symbiotics Knowledge of technologies for obtaining probiotic dairy products Study of the biological properties of fermented dairy products, the functions of the intestinal microflora and its effects on the body Changes in the intestinal microflora with age Study of the influence of fermented dairy products and lactic acid bacteria on various disorders and diseases Obtaining functional foods from ocean fish, obtaining fish fat, obtaining products based on animal proteins, obtaining protection products from animal organs Understanding the role and importance of the discipline in relation to the other disciplines and correlating the knowledge from the disciplines aimed at the general specialized training.

8. Content

8.1. LECTURE **Number of hours – 28**	**Teaching methods** Lecture	**Notes** 1 lecture = 2 hours
Digestive system, intestinal microflora functions and functional dairy products The digestive structure and its functions Intestinal microbiota	Lecture, heuristic conversation, explanation	1 lecture
Probiotics - prebiotics - symbiotics	Lecture, heuristic conversation, explanation	2 lectures
Functional foods of animal origin Functional dairy products Functional beef products Functional ocean fish food	Lecture, heuristic conversation, explanation	7 lectures
Health effects of fermented dairy products	Lecture, heuristic conversation, explanation	2 lectures
Functional food of animal origin as a protective food	Lecture, heuristic conversation, explanation	1 lecture

Incorporation of bioactive substances in functional foods	Lecture, heuristic conversation, explanation	1 lecture

8.2. PRACTICAL WORK **Number of hours – 28**	**Theoretical presentation of practical works**	1 labwork (2 hours/work)
Introduction and steps in obtaining and assessing functional foods of animal origin	Demonstration, observation, conversation	1 labwork
Functional dairy products - case studies	Demonstration, observation, conversation	1 labwork
Obtaining yogurt with different lactic bacteria cultures	Practical demonstration, observation, conversation	2 labwork
Obtaining yogurt with plant bioactive compounds	Practical demonstration, observation, conversation	1 labwork
Functional fish products – case studies	Demonstration, observation, conversation	1 labwork
Obtaining canned ocean fish	Practical demonstration, observation, conversation	2 lab work
Obtaining cans for children	Practical demonstration, observation, conversation	1 labwork
Obtaining functional foods from beef	Practical demonstration, observation, conversation	2 lab work
Obtaining functional products from animal organs	Practical demonstration, observation, conversation	2 lab work
Examination	Demonstration, observation, conversation	1 labwork

Compulsory bibliography:

1. *Ţibulcă, D. şi Jimborean Mirela 2013, Alimente funcţionale de origine animală, Ed. Risoprint, Cluj-Napoca*

Optional bibliography:

1. *Banu, C. coordinator 2010, Alimente funcţionale, suplimente alimentare şi plante medicinale, Editura ASAB, Bucureşti*
2. *Banu, C. şi colab. 2000, Biotehnologii în industria alimentară, EdituraTehnică, Bucureşti*
3. *Costin, G.M. 2007, Produse lactate funcţionale, Editura Academică, Galaţi.*
4. *Costin, G.M.2005, Produse lactate fermentate, Editura Academică, Galaţi*
5. *Costin, G.M., Segal, Rodica 1999, Alimente funcţionale. Alimentele şi sănătatea, Editura Academică, Galaţi*
6. *Segal, B., Segal, Rodica 1991, Tehnologia produselor alimentare de protecţie, Ed. Ceres, Bucureşti*
7. *Segal, B., Cotrău, M., Segal, Rodica 1987, Factori de protecţie prezenţi în alimente, Ed. Junimea, Iaşi*

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

The content of the discipline is in accordance with the requests of specific national professional associations

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Logical and correct application of the acquired notions	Continuous assessment	75%
10.5. Seminar/Laboratory	Application of knowledge on functional foods of animal origin	Continuous assessment / Project presentation	25%
10.6. Minimum performance standards			
Understanding, describing and interpreting the basics of the role of functional foods of animal origin Ability to apply the knowledge gained by solving at least 50% of the theoretical topics.			

[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).

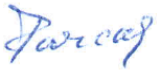
[3] Course regime (compulsory level) - to be chosen one of the following - **DI** (compulsory subject), **DO** (optional subject), **DFac** (facultative subject)

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

Filled in on
09.09.2021

Course coordinator
Assoc. Prof. PhD. Dorin Ţibulcă

Laboratory work/seminar coordinator
Lecturer PhD. Anca Fărcaş



Subject coordinator
Assoc. Prof. PhD. Dorin Ţibulcă

Approved by the Department on
22.09.2021

Head of the Department
Professor PhD. Sevastiţa Muste

Approved by the Faculty Council on
28.09.2021

Dean
Professor PhD. Elena Mudura