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 form 0703040220**

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 Science
1.4. Field of study	Food Engineering
1.5.Education level	Bachelor
1.6.Specialization/ Study programme	Food Engineering
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Sensory analysis							
2.2. Course coordinator	Assoc. Prof. eng. Laura Stan, PhD							
2.3. Seminar/ laboratory/ project coordinator	Assoc. Prof. eng. Laura Stan, PhD							
2.4. Year of study	4	2.5. Semester	8	2.6. Type of evaluation	Continuous	2.7. Discipline status	Content[2]	FD
							Compulsoriness[3]	CD

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	Out Of Which: 3.2. Lecture	1	3.3. Seminar/ Laboratory/ Project	2
3.4.Total number of hours in the curriculum	42	Out Of Which: 3.5.Lecture	14	3.6.Seminar/Laboratory	28

Distribution of the time allotted	hours
3.4.1. Study based on book, textbook, bibliography and notes	4
3.4.2. Additional documentation in the library, specialized electronic platforms and field	1
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays	1
3.4.4.Tutorials	1
3.4.5.Examinations	1
3.4.6. Other activities	0

3.7. Total hours of individual study	8
3.8. Total hours per semester	50
3.9. Number of credits[4]	2

4. Prerequisites (is applicable)

4.1. curriculum-related	Food chemistry, Biochemistry, Organic chemistry, Food Microbiology, Informatics, Statistics
4.2. skills-related	The student should have and basic computer skills.

5. Conditions (if applicable)

5.1. for the lecture	Lecture room, video projector, blackboard. The course is interactive; students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. Any other activities during the lecture are not allowed, mobile phones will be turned off.
5.2. for the seminar/ laboratory/ project	Laboratory for food sensory analysis equipped with individual boxes. The deadline for submitting the laboratory work or project is set by the coordinator of the lab works in agreement with the students. Requests for delayed handed in of the projects are accepted only for objective reasons. Also, in case of late submission of laboratory works or projects, the scores will decrease accordingly with 1 point / day of delay.

6. Specific competences acquired

Professional competences	CP1.Description and application of cpncepts, basic methods and pricinples in sensory analysis. CP2. Explanation and interpretation of statistical concepts, processes, models and methods based on fundamental knowledge about the composition, structure, proprerties and transformations of food components based on sense organs C3. Evaluation of qualitative and quantitative characteristics, performances and limits of the specific sensory analysis methods in order to solve the problems appeared along the food chain CP4. To apply statistical methods to interpret the data of sensory tests. CP5. To work on projects for improvement of foods' sensory quality. CP6. To plan and organise food sensory analysis tests.
Transversal competences	CT.1 To prove resilience, discipline, efficiency and responsibility, as well as work ethics, creativity, common sense and critical thinking problem solving, to identify correlations between technological processes, biochemical processes and changes n the food matrix and sensory quality. CT.2 To involve in research activities and documentation in the field of sensory analysis and prove dedication to improve the sensory quality of foods CT3. To demonstrate the empathic capacities of interpersonal communication and to assume specific attributions in carrying out the group activity as well as the ability of communication and inter-relationship within a team in order to solve or mediate individual / group conflicts, optimal time management.

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

7.1. Overall course objective	To acquire the knowledge necessary to perform sensory analysis tests for foods, to apply qualitative and quantitative methods of analysis, to train analysts, to interpret the tests' results.
7.2. Specific objectives	To understand the differences between quantitative and qualitative methods. To be able to statistically interpret the results of a sensory analysis test. To identify the factors that influences the sensory quality of food.

8. Content

8.1. LECTURE **Number of hours – 14**	**Teaching methods**	**Notes**
1. Sensory analysis of food methods of assessing the quality of food: Definition. History. Methodological progress.	Interactive lecture, Examples, applications	1 lecture (2h)
2. Sensations and their role in sensory analysis 2.1. The visual system. 2.2. The auditory system. 2.3. The tactile system. 2.4. The olfactory system. 2.5. The taste system. 2.6. Sensory adaptation and interaction of the sensations. Sensory thresholds and the possibility of their modification.	Interactive lecture, Examples, applications	1 lecture (2h)
3. General test conditions in sensory analysis 3.1. Sample preparation area 3.2. Test chambers 3.3. Selection and training of evaluators 3.4. Measuring scales	Interactive lecture, Examples, applications	1 lecture (2h)
4. Classical methods in sensory analysis 4.1. Sensory analysis methods - overview. Establishing the objective of the sensory analysis test. 4.2. Affective methods. The hedonic test. Preferential test. The emotional test. Applications in the food	Interactive lecture, Examples, applications	1 lecture (2h)

industry. 4.3. Discrimination methods: pair test method, triangular method, duo-trio method, method two out of five, method A different from A, method of ordering by rank. Applications in the food industry. 4.4. Quantitative descriptive methods: small, medium and large deck numbering tests. Applications in the food industry. 4.5. Qualitative descriptive methods: simple descriptive method, flavor profile method. Applications in the food industry. **5. The role of sensory analysis in the development of new products**	Interactive lecture, Examples, applications Interactive lecture, Examples, applications Interactive lecture, Examples, applications	1 lecture (2h) 1 lecture (2h) 1 lecture (2h)

8.2. PRACTICAL WORK **Number of hours – 28**	**Teaching methods**	**Notes**
1. Methods for panellists preselection, selection, and training 2. Evaluation of taste threshold: the dilution method 3. Affective methods - preferential test, interpretation of results. Individual project 4. Affective methods - hedonic test, interpretation of results. Individual project. 5. Differentiation methods – triangle test; statistical interpretation of results. Individual project 6. Differentiation methods – duo-trio test; interpretation of results. 7. Ranking test. Individual project. 8. Descriptive methods - simple descriptive test 9. Quality assessment methods - rating test; interpretation of results. Individual project. 10. Project presentation/Final evaluation of knowledges	Practical evaluation of food samples, discussions, team and individual work, data interpretation	1 lab work (2h) 1 lab work (2h) 2 lab work (4h) 2 lab works (4h) 1 lab work (2h) 1 lab work (2h) 1 lab work (2h) 1 lab work (2h) 2 lab work (4h) 2 lab work (4h)

Compulsory bibliography:

1. Handwritten notes from courses and laboratories
2. BS 5098:1992, Glossary of terms relating to sensory analysis
3. BS 7183:1989, Design of test rooms for sensory analysis of food
4. BS ISO 13299:2003, Sensory analysis — Methodology — General guidance for establishing a sensory profile
5. BS ISO 4121:2003, Sensory analysis — Guidelines for the use of quantitative response scales
6. Stan Laura, 2018, Analiza senzorială a produselor alimentare – manual pentru învăţământul la distanţă, Ed. Academic Press Cluj-Napoca, e-ISBN 978-973-744-673-2
7. Stan Laura, Crina Carmen Muresan, 2015, Analiza senzorială a alimentelor – îndrumător de lucrări practice, Ed. Academic Press Cluj-Napoca ISBN 978-973-744-423-3

Optional bibliography:

1. Gacula Jr, M. C., 2008, Design and analysis of sensory optimization. John Wiley and Sons.
2. Hough, G., 2010, Sensory shelf life estimation of food products. CRC Press.
3. Lawless, H. T., Heymann, H., 2010, Sensory evaluation of food: principles and practices. Springer Science and Business Media.
4. Lyon, D. H., Francombe, M. A., Hasdell, T. A., 2012, Guidelines for sensory analysis in food product development and quality control. Springer Science and Business Media.
5. Næs, T., Brockhoff, P., Tomic, O., 2011, Statistics for sensory and consumer science. John Wiley and Sons.
6. Stone, H., Bleibaum, R., Thomas, H. A., 2012, Sensory evaluation practices. Academic press.

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

The study of sensory analysis allows students to develop skills in quality evaluation of foods in the following specific situations:
- evaluation of the sensory quality of a product;
- improving the sensory quality of a product.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Evaluation of overall acquired knowledge Knowledge of specific terminology Knowledge of the principles and methods of sensory analysis and their correct, coherent and logical application in concrete applications Degree of involvement, presence	Written or oral exam	50%
10.5. Laboratory/seminar	Evaluation of the ability to correctly use the principles and methods used in sensory analysis in case studies Interpretation of results Degree of involvement, presence	Continuous evaluation Final colloquium	25%
	Presentation of case studies Critical thinking and the ability to synthesize the methods and results obtained in sensory analysis for the development of new products and quality control	Project or written report and powerpoint presentation	25%
10.6. Minimum performance standards			
Description of a sensory evaluation method, including argumentation of the choice of the method and presentation of the statistical interpretation of the results. Preparation of individual reports on sensory evaluation of foods with the studied methods. Carrying out team projects regarding the sensory evaluation of food applying the studied methods. Passing score: minimum 5 to all forms of evaluation from the course and laboratory and projects. The final grade is the average of lecture marks and lab works marks.			

[1] Education levels- 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).

[5 / *] Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on
10. 09. 2021

Course coordinator
Assoc. Prof. eng. Laura Stan, PhD

Seminar coordinator
Assoc. Prof. eng. Laura Stan, PhD

Subject coordinator
Assoc. Prof. eng. Laura Stan, PhD

Approved by the Department on 22.09.2021

Head of the Department
Prof. Dr. Ramona SUHAROSCHI, PhD

Approved by the Faculty Council on 28.09.2021

Dean
Prof. Dr. Elena Mudura, PhD