UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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**No._____of _____** **USAMV form 0701040112**

# SUBJECT OUTLINE

## 1. Information on the programme

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|---|---|
| 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 | Technology of Agricultural Products Processing |
| 1.7. Form of education | Full time |

## 2. Information on the discipline

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|---|---|---|---|---|---|---|---|---|
| 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 | **VIII** | 2.6. Type of evaluation | Continuous | 2.7. Discipline status | Content[2] | DS |
| | | | | | | | Compulsoriness [3] | DI |

## 3. Total estimated time (teaching hours per semester)

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|---|---|---|---|---|---|
| **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)

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| 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)

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| **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 |

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| | 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

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| Professional competences | CP1.Description and application of cpncepts, basic methods and pricinples in sensory analysis.<br>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<br>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<br>CP4. To apply statistical methods to interpret the data of sensory tests.<br>CP5. To work on projects for improvement of foods' sensory quality.<br>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.<br>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<br>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)

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| **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.<br>To be able to statistically interpret the results of a sensory analysis test.<br>To identify the factors that influences the sensory quality of food. |

## 8. Content

| **8.1. LECTURE**<br>**Number of hours – 14** | **Teaching methods** | **Notes** |
|---|---|---|
| **1. Sensory analysis of food methods of assessing the quality of food:** Definition. Historic. Methodological progress. | Interactive lecture, Examples, applications | 1 lecture (2h) |
| **2. Sensations and their role in sensory analysis**<br>2.1. The visual system.<br>2.2. The auditory system.<br>2.3. The tactile system.<br>2.4. The olfactory system.<br>2.5. The taste system.<br>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**<br>3.1. Sample preparation area<br>3.2. Test chambers<br>3.3. Selection and training of evaluators<br>3.4. Measuring scales | Interactive lecture, Examples, applications | 1 lecture (2h) |
| **4. Classical methods in sensory analysis**<br>4.1. Sensory analysis methods - overview. Establishing the objective of the sensory analysis test.<br>4.2. Affective methods. The hedonic test. Preferential test. The emotional test. Applications in the food industry. | Interactive lecture, Examples, applications | 1 lecture (2h) |
| 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. | Interactive lecture, Examples, applications | 1 lecture (2h) |
| 4.4. Quantitative descriptive methods: small, medium and large deck numbering tests. Applications in the food industry.<br>4.5. Qualitative descriptive methods: simple descriptive method, flavor profile method. Applications in the food industry. | Interactive lecture, Examples, applications | 1 lecture (2h) |
| **5. The role of sensory analysis in the development of new products** | Interactive lecture, Examples, applications | 1 lecture (2h) |

| **8.2. PRACTICAL WORK**<br>**Number of hours – 28** | **Teaching methods** | **Notes** |
|---|---|---|
| 1. Methods for panellists preselection, selection, and training | Practical evaluation of food samples, discussions, data interpretation | 1 lab work (2h) |
| 2. Evaluation of taste threshold: the dilution method | | 1 lab work (2h) |
| 3. Affective methods - preferential test, interpretation of results. Individual project | | 2 lab work (4h) |
| 4. Affective methods - hedonic test, interpretation of results. Individual project. | | 2 lab works (4h) |
| 5. Differentiation methods – triangle test; statistical interpretation of results. Individual project | | 1 lab work (2h) |
| 6. Differentiation methods – duo-trio test; interpretation of results. | | 1 lab work (2h) |
| 7. Ranking test. Individual project. | | 1 lab work (2h) |
| 8. Descriptive methods - simple descriptive test | | 1 lab work (2h) |
| 9. Quality assessment methods - rating test; interpretation of results. Individual project. | | 2 lab work (4h) |
| 10. Project presentation/Final evaluation of knowledges | | 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<br>Knowledge of specific terminology<br>Knowledge of the principles and methods of sensory analysis and their correct, coherent and logical application in concrete applications<br>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<br>Interpretation of results<br>Degree of involvement, presence | Continuous evaluation<br>Final colloquium | 25% |
| | Presentation of case studies<br>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.<br>Preparation of individual reports on sensory evaluation of foods with the studied methods.<br>Carrying out team projects regarding the sensory evaluation of food applying the studied methods.<br>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] 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 hours of study (didactical and individual study).

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