



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV-CN form-0705010210

## 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                 | Master                                                                     |
| 1.6. Specialization/ Study programme | Food Processing Systems and Quality Control                                |
| 1.7. Form of education               | Regular studies                                                            |

### 2. Information on the discipline

|                                               |   |                                                              |    |                                                    |                |                        |                             |    |
|-----------------------------------------------|---|--------------------------------------------------------------|----|----------------------------------------------------|----------------|------------------------|-----------------------------|----|
| 2.1. Name of the discipline                   |   | Advanced control methods of animal origin agri-food products |    |                                                    |                |                        |                             |    |
| 2.2. Course coordinator                       |   |                                                              |    | Assoc. Prof. Dr. habil. Cristina Anamaria Semeniuc |                |                        |                             |    |
| 2.3. Seminar/ laboratory/ project coordinator |   |                                                              |    | Assoc. Prof. Dr. habil. Cristina Anamaria Semeniuc |                |                        |                             |    |
| 2.4. Year of study                            | I | 2.5. Semester                                                | II | 2.6. Type of evaluation                            | Continuou<br>s | 2.7. Discipline status | Content <sup>2</sup>        | SD |
|                                               |   |                                                              |    |                                                    |                |                        | Compulsoriness <sub>3</sub> | CD |

### 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/ project | 28    |
| Distribution of the time allotted                                                            |     |                            |    |                                   | hours |
| 3.4.1. Study based on book, textbook, bibliography, and notes                                |     |                            |    |                                   | 30    |
| 3.4.2. Additional documentation in the library, specialized electronic platforms, and field  |     |                            |    |                                   | 30    |
| 3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios, and essays |     |                            |    |                                   | 30    |
| 3.4.4. Tutorials                                                                             |     |                            |    |                                   | 10    |
| 3.4.5. Examinations                                                                          |     |                            |    |                                   | 10    |
| 3.4.6. Other activities                                                                      |     |                            |    |                                   | 9     |
| 3.7. Total hours of individual study                                                         | 119 |                            |    |                                   |       |
| 3.8. Total hours per semester                                                                | 175 |                            |    |                                   |       |
| 3.9. Number of credits <sup>4</sup>                                                          | 7   |                            |    |                                   |       |

### 4. Prerequisites (is applicable)

|                         |                                                                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 4.1. curriculum-related | Basic notions of food chemistry and biochemistry                                                                                      |
| 4.2. skills-related     | The student must have the necessary knowledge for proper handling of chemical reagents, glassware, utensils, and laboratory equipment |

### 5. Conditions (if applicable)

|                                           |                                                                                                                                                                                  |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1. for the lecture                      | Classroom, equipped with: blackboard, video projector, and computer<br>In the case of carrying out online didactic activities, the teaching methods will be adapted              |
| 5.2. for the seminar/ laboratory/ project | Laboratory equipped with laboratory equipment, glassware, utensils, and reagents<br>In the case of carrying out online didactic activities, the teaching methods will be adapted |



## 6. Specific competences acquired

|                          |                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Professional competences | C5.2. Explanation and interpretation of methods for assessing the quality of agri-food products<br>C5.3. Use of specific methodology for evaluation and control of agri-food products |
| Transversal competences  | CT1. Responsible execution of laboratory tests; analytical and critical thinking in interpreting results                                                                              |

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

|                               |                                                                                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.1. Overall course objective | Allows students to understand the nature of research, the differences between qualitative and quantitative research, and to reflect on the value of different pathways to knowledge |
| 7.2. Specific objectives      | Allows students to use research tools appropriately and to interpret and critically evaluate data they obtain                                                                       |

## 8. Contents

| 8.1. LECTURE                                | Teaching methods                               | Notes        |
|---------------------------------------------|------------------------------------------------|--------------|
| <b>Muscle meat</b>                          | Participatory lecture, debate, exemplification | 1 lecture    |
| Analysis of mycotoxin                       |                                                |              |
| Detection of genetically modified organisms |                                                | 1 lecture    |
| Analysis of antibiotic residues             |                                                | 1 lecture    |
| <b>Seafood and seafood products</b>         |                                                | 1 lecture    |
| Instrumental texture analysis               |                                                |              |
| QIM (Quality index Methods) schemes         |                                                | 1 lecture    |
| <b>Processed meats</b>                      |                                                | 1 lecture    |
| Analysis of preservatives                   |                                                |              |
| Determination of oxidation                  |                                                | 1.5 lectures |
| Determination of proteolysis                |                                                | 1.5 lectures |
| Determination of lipolysis                  |                                                | 1 lecture    |
| <b>Milk and dairy</b>                       |                                                | 1 lecture    |
| Determination of glycolysis                 |                                                |              |
| Determination of proteolysis                |                                                | 1 lecture    |
| Amines                                      |                                                | 1 lecture    |
| <b>Continuous assessment</b>                | -                                              | 1 lecture    |

| 8.2. PRACTICAL WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Teaching methods                                     | Notes              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------|
| Determination of thiobarbituric acid reactive substances (TBARS) in meat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Presentation, explanation, demonstration, case study | 3 laboratory works |
| Determination of peroxide value (PV) in anhydrous milk fat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                      | 3 laboratory works |
| Determination of nitrate and nitrite content of meat products after enzymatic reduction of nitrate to nitrite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                      | 3 laboratory works |
| Determination of thiobarbituric acid reactive substances (TBARS) in yogurt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                      | 3 laboratory works |
| Test of verifying knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -                                                    | 2 laboratory works |
| <b>Compulsory bibliography:</b> <ol style="list-style-type: none"> <li>Nollet L.M.L., Toldra F. (2008). Handbook of Muscle Foods Analysis, 1<sup>st</sup> Ed. CRC Press, Boca Raton;</li> <li>Nollet L.M.L., Toldra F. (2008). Handbook of Processed Meats and Poultry Analysis, 1<sup>st</sup> Ed. CRC Press, Boca Raton;</li> <li>Nollet L.M.L., Toldra F. (2009). Handbook of Dairy Foods Analysis, 1<sup>st</sup> Ed. CRC Press, Boca Raton;</li> <li>Nollet L.M.L., Toldra F. (2009). Handbook of Seafood and Seafood Products Analysis, 1<sup>st</sup> Ed. CRC Press, Boca Raton.</li> </ol> |                                                      |                    |



Optional bibliography:

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**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**

In outlining the course content and practical work were considered recommendations of food industry employers.

**10. Assessment**

| Type of activity                           | 10.1. Assessment criteria                                                                                  | 10.2. Assessment methods           | 10.3. Percentage of the final grade |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------|
| <b>10.4. Lecture</b>                       | Logical, correct, and coherent application of acquired notions                                             | <b>Continuous assessment</b>       | 50%                                 |
| <b>10.5. Seminar/ Laboratory</b>           | Ability to perform tests in a chemical testing laboratory<br>Ability to analyse and interpret test results | <b>Test of verifying knowledge</b> | 50%                                 |
| <b>10.6. Minimum performance standards</b> |                                                                                                            |                                    |                                     |
| Execution of a laboratory test             |                                                                                                            |                                    |                                     |
| Elaboration of a test report               |                                                                                                            |                                    |                                     |

<sup>1</sup> Education levels-choose of the three options-Bachelor/ Master/ Ph.D.

<sup>2</sup> Discipline status (content)-or the undergraduate level, choose one of the options-**FD** (fundamental discipline), **BD** (basic discipline), **SD** (specific discipline-food engineering), **UO** (discipline based on the university's options).

<sup>3</sup> Discipline status (compulsoriness)-choose one of the options-**CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

**Filled in on**  
06.09.2021

**Course coordinator**  
Assoc. Prof. Dr. habil. Cristina Anamaria  
Semeniuc

**Laboratory work/ seminars coordinator**  
Assoc. Prof. Dr. habil. Cristina Anamaria  
Semeniuc

**Course coordinator**  
Assoc. Prof. Dr. habil. Cristina Anamaria Semeniuc

**Approved by the Department on**  
22.09.2021

**Head of the Department**  
Prof. Dr. Sevastița Muste

**Approved by the Faculty Council on**

**Dean**  
Prof. Dr. habil. Elena Mudura

28.09.2021