

Course Unit	Meat Science		Field of study	Animal Science	
Master in	Technology and Animal Science		School	School of Agriculture	
Academic Year	2023/2024	Year of study	1	Level	2-1
Type	Semestral	Semester	2	Code	5026-810-1201-00-23
Workload (hours)	162	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Sandra Sofia Quinteiro Rodrigues

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. At the end of the unit curriculum the student should be able to: Awareness of the role of meat and meat products in the diet of most companies today.
2. Increase in interest in improving the use of protein from meat, through the proper use of various methods and procedures.
3. Develop expertise in all aspects of the industry production of fresh and processed, as it to quality control.

### Prerequisites

Before the course unit the learner is expected to be able to:

1. Students should have knowledge of biochemistry, microbiology, hygiene and health
2. Knowledge of food technology and quality control and food safety.

### Course contents

Chemistry of animal tissues (proteins, fats, carbohydrates, inorganic compounds, and water). Structure of muscle. The operations of killing and quality: DFD meat, PSE. Rigor mortis, rigor and thawing of cricchoque. Pigmentation of the meat. Preservation of fresh meat. Processed meats (cured products and products processed by heat). Meat and meat products quality analysis. Microorganisms with an interest in Food Technology.

### Course contents (extended version)

1. Introduction to meat industry
2. The fundamental unit of meat study: the carcass.
3. Meat structure and composition. Nutritional components of meat.
  - Protein, fat, carbohydrates, water, other
4. Meat and meat products authenticity.
  - Evaluation methods of meat and meat products quality characteristics.
5. Meat adulteration
  - Stable isotopes analysis
  - Persistent organic pollutants
  - Growth promoters
  - Genetically modified organisms
6. Practice 1. The laboratory of technology and quality of the carcass an meat
  - Security rules and precautions
  - Equipment to be used
  - Techniques of use of knives
7. Practice 2. Carcass quality: evaluation and jointing. Determination of carcass pH and physical color
8. Practice 3. Preparation of samples for evaluation. Meat quality (color, pH)
9. Practice 4. Meat quality (Water holding capacity, instrumental texture)
10. Practice 5. Meat quality (Dry matter and ashes)
11. Practice 6. Meat quality (Hemincic pigments)
12. Practice 7. Meat quality (Chlorides)
13. Practice 8. Meat quality (protein)
14. Practice 9. Meat quality (Fat)

### Recommended reading

1. Savell, J. W. and Smith, G. C. , 1998. Meat Science. Laboratory Manual. American Press.
2. Warriss, P. D. , 2000. Meat science. An introductory text. CABI Publishing, Oxford, Reino Unido, 310 pp.
3. Price, J. F. e Schweigert, B. S. 1994. Ciencia de la carne y de los productos cárnicos. 2ª Edição, Editorial Acribia, Saragoça, Espanha, 592 pp.
4. Swatland, H. J. , 2000. Meat cuts and muscle foods. Nottingham, University Press. Vários, 2005.
5. Vários, 2005. Estandarización de las metodologias para evaluar la calidad del producto (animal vivo, canal, carne y grasa) en los rumiantes. Monografía INIA: Série Ganadera, nº3.

### Teaching and learning methods

Expositive theoretical and application practical lessons. Lessons from the field, laboratory, films, slides, and study tours. Availability of working papers on e-learning platform. No presence in the hours, the students will perform a work of quality analysis of various food products. In the end, the student must produce a report.

### Assessment methods

1. Continuous evaluation - (Regular, Student Worker) (Final)
  - Reports and Guides - 50% (3 ECTS)
  - Final Written Exam - 50% (3 ECTS Minimum grade 8)
2. Final evaluation - (Regular, Student Worker) (Final, Supplementary, Special)
  - Final Written Exam - 100%

### Language of instruction

1. Portuguese
2. Portuguese, with additional English support for foreign students.

## Electronic validation

Sandra Sofia Quinteiro Rodrigues	Marieta Amélia Martins Carvalho	Alfredo Jorge Costa Teixeira	Ramiro Corujeira Valentim
22-01-2024	22-01-2024	22-01-2024	23-01-2024