



## IDENTIFYING DATA

### Science and technology of meat products

Subject	Science and technology of meat products			
Code	001G041V01701			
Study programme	Grado en Ciencia y Tecnología de los Alimentos			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	4th	1st
Teaching language	Spanish Galician			
Department				
Coordinator	Martínez Suárez, Sidonia			
Lecturers	Lorenzo Rodríguez, José Manuel Martínez Suárez, Sidonia			
E-mail	sidonia@uvigo.es			
Web				
General description	This discipline has like aims the study of the nature of the meat and the causes of his alteration, in addition to the scientific foundations and the applications of the methods used for his processed, conservation and diversification			

## Training and Learning Results

Code				
A2	Students will be able to apply their knowledge and skills in their professional practice or vocation and they will show they have the required expertise through the construction and discussion of arguments and the resolution of problems within the relevant area of study.			
B2	Students will acquire and put teamwork skills and abilities into practice, whether these have multidisciplinary character or not, in both national and international contexts, becoming familiar with a diversity of perspectives, schools of thought and practical procedures.			
B4	Students will be able to adapt to new situations, become highly creative and have ideas to take up leadership positions.			
B5	Students will be able to take the initiative and acquire entrepreneurship skills, with a special focus on improving the quality of life.			
C2	To be familiar with the chemistry and biochemistry of food and of its associated technological processes.			
C5	To be familiar with the basic operations in the food industry.			
C6	To be familiar with the industrial processes linked with the processing and transformation of food.			
C12	Ability to make and preserve food.			
C14	Ability to control and optimize processes and products.			
C15	Ability to develop new processes and products.			
C21	Ability to act as consultant in processes of marketization and distribution of products in the food industry.			
D1	Analysis, organization and planning skills.			
D5	Problem-resolution and decision-making skills.			
D7	Ability to adapt to new situations in creative, innovative ways.			
D8	Critical and self-critical thinking skills.			

## Expected results from this subject

Expected results from this subject	Training and Learning Results			
*RA1: That the student was able to analyse a situation in an industry *cárnica, was able to take decisions and to resolve problems with initiative and creativity and besides was able to transmit these decisions or solutions to the other	A2	B2	C12 C14 C15 C21	D1 D5 D7 D8

*RA2: That it comprise the process of transformation of the muscle in meat, the physical phenomena, physical-chemical and purely chemical that take place in this stage and the influence of the development of these phenomena in the characteristics and attributes of quality of the final product.				C2 C5 C6 C14
*RA3: That it know the parameters of quality so much *organoléptica like *composicional and hygienic of the meat and the factors of which these depend.				C2 C14 C21
*RA4: That it know which are the methods of conservation more used in the cool meat.				C5 C6 C12 C14 C15 C21
*RA5: That it know, likewise, the different products *cárnicos, his formulations and technologies of preparation, as well as the defects and alterations more common in each one of them.	B2			C6 C12 C14 C15 C21
*RA6: That the student was *capaza to apply these knowledges in the industry	A2	B2 B4 B5	C21	D1 D5 D7 D8

## Contents

Topic	
Unit I: INTRODUCTION	Subject 1.- The meat and meat industry
Unit II: COMPOSITION and STRUCTURE OF THE MUSCLE	Subject 2.- Structure of the muscle Fear 3.- Chemical composition of the muscle.
Unit III: TRANSFORMATION OF THE MUSCLE IN MEAT	Subject 4.- Transformation of the muscle in meat.
Unit IV: QUALITY	Subject 5.- Anomalous meats.
Unit V: OPERATIONS OF OBTAINING	Subject 6.- Sensory quality of the meat.
Unit SAW: SYSTEMS OF CONSERVATION And PROCESSED OF THE MEAT	Subject 7.- Sacrifice and Carnización Subject 8.- The refrigeration of the meat. Subject 9.- The freezing of the meat and the storage of the meat to freezing. Thawing Fear 10.- The packaging of the meat.
Unit VII: GENERAL TECHNOLOGY OF PREPARATION OF DIFFERENT PRODUCTS *CÁRNICOS	Subject 11.- The salazonado and the cured of the meats. Subject 12.- Cured crude meat products Subject 13.- Cured meat products subjected to thermal treatments. Subject 14.- Sausages. Raw and cured sausages Subject 15.- Cooked sausages. Subject 16.- Canned meat. Meat restructured. New foods.
SEMINARS:	1. Systems of processed in meat insustry 2. Health benefits OF consumption of meat 3. Meat products
PRACTICES OF LABORATORY	1. Phisicochemical determination in meat 2. Quality parameters of meat and meat products 3. Processing of meat products

## Planning

	Class hours	Hours outside the classroom	Total hours
--	-------------	-----------------------------	-------------

Lecturing	27	30.4	57.4
Seminars	14	15	29
Laboratory practical	14	4	18
Presentation	1	1	2
Autonomous problem solving	0	3	3
Mentored work	0	18	18
Learning-Service	0	20	20
Report of practices, practicum and external practices	0	0.6	0.6
Objective questions exam	0	1	1
Problem and/or exercise solving	0	1	1

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

## Methodologies

Methodologies	Description
Lecturing	Lessons magistrales in which they will expose the most important appearances of the subject to the student, with support of presentations in Power Point, blackboard and transparency and with available material *FAITIC
Seminars	Will carry out different activities oriented to specific subjects related with the Science and the Technology of the Meat, that allow to deepen and complement the lessons *magistrales.  They will elaborate works using different tools TIC to apply the learning *colaborativo in the classroom and out of her.  It will work of individual form or in group.
Laboratory practical	They made activities where will apply the skills and knowledges purchased in the theoretical classes. Under the supervision of the professor, the students will carry out these activities following the protocols and using the materials supplied during the practices. The practical will be compulsory and indispensable to surpass the subject. It will allow a fault as long as this was justified. The students will have to elaborate a memory of practices.
Presentation	They will elaborate works using different tools TIC to apply the learning colaborativo in the classroom and out of her (Postcast educational, infografías, ...)  The student will have to make bibliographic researches, collected of information, editorial, exhibition and defence of the work.
Autonomous problem solving	They will elaborate monographic works and will work of individual form or in group on texts contributed by the professor
Mentored work	The student will have to make bibliographic researches, collected of information, editorial, exhibition and defence of the work. It will make a follow-up of the work in tutorías.
Learning-Service	It offers him to the estudiantado participate of voluntary form in the project "Feeding a sustainable future" devoted to the production and the responsible consumption, the hunger zero, the industry of foods and the innovation. The participation will be voluntary. The students participants will receive material of support that will have to expand by means of bibliographic research. They will work in team. They will make on-line informative activities and/or face-to-face in format of day/workshop/chats in the centres involved. The application of this methodology is conditioned to his approval in the announcement ApS 23-24.  For the students that do not participate in this activity, this methodology will be substituted by individual works or in group.

## Personalized assistance

Methodologies	Description
Seminars	It will make a continuous follow-up of the students and will carry out a personalised attention, through the classes, of the resolution of exercises and of the control of the work made. Also they will be able to assist, if like this they wish it, to the *tutorías in group or personalised. The *tutorías relative to the teaching of the *clasea types To and *B will be able to make of face-to-face form in the dispatch of the professor or of virtual form, through the remote campus in schedule of *tutorías and asking previous appointment through the email (sidonia@uvigo.es; jmlorenzo@ceteca.net).
Laboratory practical	It will make a continuous follow-up of the students and will carry out a personalised attention, through the classes, of the resolution of exercises and of the control of the work made. Also they will be able to assist, if like this they wish it, to the *tutorías in group or personalised. The *tutorías relative to the practices (hours type C) will follow the same procedure in the dispatches or virtual classrooms of the professors commissioned of his teaching, whose direction will communicate in his moment.

Mentored work	It will make a continuous follow-up of the students and will carry out a personalised attention, through the classes, of the resolution of exercises and of the control of the work made. Also they will be able to assist, if like this they wish it, to the *tutorías in group or customisedThe *tutorías will follow the same procedure in the dispatches or virtual classrooms of the professors commissioned, whose direction will communicate in his moment.
Learning-Service	The professors will define the challenges for the groups participants and will design a stage of learningwill deliver the different tasks between the groups, and will guide in the process of realisation of the same.

Assessment						
	Description	Qualification	Training and Learning Results			
Lecturing	In the total qualification will take into account, the participation of the student and the attitude.	2	B2	C2 C5 C6	D1 D8	
	Results of learning evaluated: *RA1 to *RA6					
Seminars	It will value the participation and the attitude	2	A2	B2 C15 C21	D1 D5 D7 D8	
	Resulted of learning evaluated: *RA1 to *RA6					
Laboratory practical	It will value the assistance, the participation, the attitude	3	A2	B2 C12 C14 C15 C21	D1 D5	
	Resulted of learning evaluated: *RA1 to *RA6					
Mentored work	It will value the number, the quality of the works presented, the exhibition and the defence	24		B2 C15		
	Resulted of learning evaluated: *RA1 to *RA6					
Learning-Service	It will make an assessment *multifocal of the project	20	A2	B2 B4 B5 C2 C5 C6 C12 C14 C15 C21	D1 D5 D7 D8	
	Resulted of learning evaluated: *RA1 to *RA6					
Report of practices, practicum and external practices	It will value the presentation of the memory of practices	5		B2 C6		
	Resulted of learning evaluated: *RA1 to *RA6					
Objective questions exam	They will make one or two test type test and of short answers	40		C6 C12 C14 C15 C21		
	Resulted of learning evaluated: *RA1 to *RA6					
Problem and/or exercise solving	It will value the correct realisation of all the activities posed.	4		C6 C12 C14 C15 C21		
	Results of learning evaluated: *RA1 to *RA6					

#### Other comments on the Evaluation

DATE OF EVALUATION

18/09/2023 - 16:00 h.

1ª edition: 6/11/2023 - 10:00 h.

2a Edition: 02/07/2024 - 10:00 h.

#### Sources of information

##### Basic Bibliography

BEJARANO, M., **Enciclopedia de la carne y de los productos cárnicos**, I y II, Martín y Macías, 2001

HUI, Y.H., GUERRERO, I. y ROSMINI, M.R., **Ciencia y Tecnología de carnes.**, Limusa S.L., 2006

RANKEN., **Handbook of meat product technology.**, Blackwell Scientific Publications, 2000

VARNAM y SUTHERLAND., **Carne y productos cárnicos. Tecnología, química y microbiología**, Acribia, 1998

VENTANAS, J., **El jamón Ibérico.De la dehesa al paladar.**, Mundi Prensa, 2006

WARRISS, P.D., **Ciencia de la carne.**, Acribia, 2003

**Complementary Bibliography**

DURAND, **Tecnología de los productos de charcutería y salazones.**, Acribia, 2002

GIRARD, **Tecnología de la carne y de los productos cárnicos.**, Acribia, 1991

JASPER y PLACZEK, **Conservación de la carne por el frío**, Acribia, 1980

JIMÉNEZ y CARBALLO, **Principios básicos de elaboración de embutidos.**, Publicaciones de Extensión Agraria, 1989

LAWRIE, R., **Ciencia de la carne.**, Acribia, 1998

OCKERMAN, **Sausage and processed meat formulations.**, Van Nostrand Reinhold,, 1989

ORDÓÑEZ, **Tecnología de los alimentos.**, Vol. 2, Síntesis, 1998

PRICE y SCHWEIGERT, **Ciencia de la carne y de los productos cárnicos.**, Acribia, 1994

VENTANAS, J., **Jamón Ibérico y Serrano. Fundamentos de la elaboración y de la calidad.**, Mundi Prensa, 2012

---

## Recommendations

---