

**COURSE DATA****Data Subject**

<b>Code</b>	36357
<b>Name</b>	Animal Biology
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>
1212 - Degree in Gastronomic Sciences	Faculty of Pharmacy and Food Sciences	1 First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1212 - Degree in Gastronomic Sciences	1 - Biology	Basic Training

**Coordination**

<b>Name</b>	<b>Department</b>
MOLTO CORTES, JUAN CARLOS	265 - Prev. Medicine, Public Health, Food Sc., Toxic. and For. Med.

**SUMMARY**

"Animal Biology" is a compulsory subject of 6 ECTS taught in first year of the Degree in Gastronomic Sciences of the University of Valencia. This subject explains the levels of organization and production cycles of the main livestock and aquaculture species for human consumption. The different species and breeds used in animal production are shown. Cutting, conservation and culinary uses of the animal products are addressed. Firstly, meat production from the major livestock species is studied. Obtaining processes of meat are described as well as the pre- and post mortem events affecting meat quality. Then aquaculture production is discussed. Products from fisheries and aquaculture are shown and their quality is discussed. Finally the production of other foods of animal origin such as milk, eggs and honey are included.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

## OUTCOMES

### 1212 - Degree in Gastronomic Sciences

- Students must have acquired knowledge and understanding in a specific field of study, on the basis of general secondary education and at a level that includes mainly knowledge drawn from advanced textbooks, but also some cutting-edge knowledge in their field of study.
- Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.
- Plan, order and channel activities in such a way that unforeseen events are avoided as much as possible, possible problems are foreseen and minimised, and solutions are anticipated.
- Acquire the basic training needed to formulate hypotheses, gather and interpret information for solving problems using the scientific method, and understand the importance and the limitations of scientific thinking.
- Be able to engage in new fields of gastronomy in general through independent study.
- Resolve tasks or carry out work in the time allotted while maintaining the quality of the result.
- Be able to construct an understandable and organised written text.
- Be able to distribute time appropriately for carrying out individual or group tasks.
- Be able to take the approaches required to reduce a problem to a manageable level.
- Distinguish varieties, butchering, cuts, preservation and culinary applications of animal foods.
- Know the operation of basic appliances and techniques related to the biology of food raw materials.

## LEARNING OUTCOMES



- To know the basic operation of devices and techniques related to the subject
- To understand and handle basic scientific terminology related to the subject
- To know the levels of organization of the body of animals
- To know the basic physiological processes of animals
- Knowing how to find the appropriate literature to update and deepen their knowledge on a specific topic
- Handled safely and efficiently in a laboratory
- To know how to present and interpret the results obtained at the laboratory

## DESCRIPTION OF CONTENTS

### 1. MEAT

1. Introduction to animal production
2. Levels of organization and livestock production cycles
  - 2.1. Ruminant production
  - 2.2. Monogastric production
3. Carcass production
4. Carcass grading and cutting
5. Offal
6. Muscle structure and composition of the meat. Influence of production systems
7. The conversion of muscle to meat. Effect of temperature and stress. Conditioning
8. Storage, preservation, quality and culinary uses

### 2. FISH AND AQUACULTURE PRODUCTS

1. Introduction to aquaculture production. Marine and freshwater aquaculture production systems
2. Products from fisheries and aquaculture characteristics
3. Quality traits in fish. Chemical composition and nutritional value
  - 3.1. Effect of diet on fish composition
  - 3.2. Post-mortem changes and during fish storage
  - 3.3. Evaluation of product quality. Estimation of fish freshness
4. Processes of transformation and fish conservation
5. Description of biotic and abiotic contaminants in fishery products and aquaculture

**3. OTHER ANIMAL PRODUCTS (MILK, EGGS AND HONEY)**

1. Milk.
  - 1.1. Milk production systems
  - 1.2. Milk secretion and milking process
  - 1.3. Milk quality
  - 1.4. Factors affecting milk quality
  - 1.5. Traceability and milk quality control. Letter Q
2. Eggs. Production and factors influencing egg quality
3. Honey. Production and quality of honey

**4. LABORATORY SESSIONS**

Laboratory sessions:

1. Meat: Physical and chemical traits of meat (3h)
2. Fish. Estimation of freshness rate in fish. Cutting fish (3h)
3. Other animal products: Quality control in primary production (1.5 h)

Milk: sampling, basic analysis, quality control

Eggs: Classification, estimation of egg freshness and egg quality

Computing lab practices:

1. Carcass production. Identification of retail cuts (3h)
2. Estimation of growth and biometrics parameters (3h)

Visit: Farms and aquaculture facilities of the UPV (1.5 h)

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	45,00	100
Laboratory practices	15,00	100
Development of group work	5,00	0
Development of individual work	5,00	0
Study and independent work	15,00	0
Readings supplementary material	5,00	0
Preparation of evaluation activities	40,00	0
Preparing lectures	15,00	0
Resolution of case studies	5,00	0
<b>TOTAL</b>	<b>150,00</b>	



## TEACHING METHODOLOGY

**Lectures:** explanatory meetings of content. Classes are taught using audio-visual technical equipment.

**Laboratory lessons:** There will be 5 laboratory sessions in the UPV. A visit to farms and aquaculture facilities of the UPV is included.

## EVALUATION

The assessment will be performed as follows:

There will be a partial exam corresponding to the first part of the subject. The exam will consist of one part of open response questions and another one that is a multiple choice test. In order to eliminate this part of the subject from the final exam it will be necessary to reach 5 points (out of 10).

There will be a final exam of the entire subject that will consist of one part of open response questions and another one that is a multiple choice test. It is necessary to reach 5 points (out of 10) to be able to add the practical lessons' note. The exam accounts for 80% of the final mark.

Attendance at practical classes is compulsory in order to pass the course. If the non-attendance to practical sessions is duly justified, it can be compensated by a special written exercise. Students have to elaborate a portfolio that reflects the activities carried out during the practical lessons. Attendance and portfolio account for 20% of the mark.

## REFERENCES

### Basic

- Referencia b1: Lawrie and D.A. Ledward. (2006). Lawrie's Meat Science. 7th Edition. Ed. Woodhead Publishing.
- Referencia b2: Warris, P.D. (2003). Ciencia de la carne. Ed. Acribia, Zaragoza.
- Referencia b3: Veisseyre, R. (1998). Lactologia Técnica: Composición Recogida, Tratamiento y Transformación de la leche. Acribia, Zaragoza.
- Referencia b4: Sikorski, Z.E. (1994). Tecnología de los productos del mar: recursos, composición nutritiva y conservación. Ed. Acribia, S.A. Zaragoza.
- Referencia b5: Alasalvar, C. (2010) Handbook of seafood quality, safety, and health applications Ed. Ames, Iowa: Blackwell Pub., 2010
- Referencia b6: Ordoñez, J.A., Cambero, I., Fernández, L., García, M.L., de la Hoz, L., Selgas, M.D. (1998). Tecnología de los alimentos. Volumen II. Alimentos de origen animal. Ed. Síntesis S.A., Madrid.





### Additional

- Referencia c1: Varnam, A.H., Sutherland, J.P. (1998). Carne y productos cárnicos. Ed. Acribia S.A., Zaragoza.
- Referencia c2: Park, Y. W., Haenlein, G. F. W. (2010). Manual de la leche de los mamíferos no bovinos. Ed. Acribia
- Referencia c3: Walstra, P., Geurts, T.J., Normen, A., Jellema, A., van Boekel, M.A.J.S. (2001). Ciencia de la leche y tecnología de los productos lácteos. Ed. Acribia S.A. Zaragoza.
- Referencia c4: Granata, L.; Flick, G. J.; Martin, Roy E. (2012). The seafood industry: species, products, processing and safety. Ed. Chichester : Wiley-Blackwell, 2012
- Referencia c5: Hall, George M. (2001). Tecnología del procesado del pescado. Ed. Acribia S.A. Zaragoza.
- Referencia c6: Londahl, G. (1984). El almacenamiento refrigerado en las pesquerías. Roma: FAO, 1984.
- Referencia c7: Merrifield, D. L.; Ringo, E. (2014) Aquaculture nutrition: gut health, probiotics and prebiotics. Ed Oxford : Wiley-Blackwell, cop. 2014
- Referencia c8: Buxadé C. (1995). Avicultura clásica y complementaria. Mundi-Prensa, Madrid