

**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>	2019 - 2020

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1212 - Grado de Ciencias Gastronómicas	Faculty of Pharmacy	1	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1212 - Grado de Ciencias Gastronómicas	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 - Grado de Ciencias Gastronómicas**

- 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.
- Planificar, ordenar y encauzar actividades de manera que se eviten en lo posible los imprevistos, se prevean y minimicen los eventuales problemas y se anticipen soluciones.
- Adquirir la formación básica para formular hipótesis, recoger e interpretar la información para la resolución de problemas siguiendo el método científico y comprendiendo la importancia y las limitaciones del pensamiento científico.
- Ser capaz de iniciarse en nuevos campos de la gastronomía en general, a través del estudio independiente.
- Resolver tareas o realizar trabajos en el tiempo asignado para ello manteniendo la calidad del resultado.
- Ser capaz de construir un texto escrito comprensible y organizado.
- Ser capaz de distribuir el tiempo adecuadamente para el desarrollo de tareas individuales o de grupo.
- Ser capaz de realizar las aproximaciones requeridas con el objeto de reducir un problema hasta un nivel manejable.
- Distinguir variedades, despiece, cortes, conservación y aplicaciones culinarias de alimentos animales.
- Conocer el funcionamiento de aparatos y técnicas elementales relacionadas con la biología de las materias primas alimentarias.

## **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**

ACTIVITAT	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.

**Seminar:** one seminar will be conducted by a specialist on a topic of interest for the matter.

**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:

Two written tests which account for 80% of the final mark. Each of these tests consists of one part of restricted response questions and another one that is a multiple choice test. In order to pass students have to reach 40% (4 out of 8 points).

Attending laboratory lessons is compulsory in order to pass. If nonattendance to a laboratory lesson 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 (20% of the final 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). Lactología 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