

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

<b>Code</b>	36369
<b>Name</b>	Bromatology
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2020 - 2021

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1212 - Degree in Gastronomic Sciences	Faculty of Pharmacy and Food Sciences	2	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1212 - Degree in Gastronomic Sciences	11 - Bromatology	Obligatory

**Coordination**

<b>Name</b>	<b>Department</b>
CILLA TATAY, ANTONIO	265 - Prev. Medicine, Public Health, Food Sc., Toxic. and For. Med.

**SUMMARY**

Basic concepts related to: a) Terminology of the subject: food chemistry, food, feeding, b) Functional foods c) Quality of foods.

Study of the different food groups (animal and plant origin, beverages and others) regarding the following aspects: composition and properties.

**PREVIOUS KNOWLEDGE**



### **Relationship to other subjects of the same degree**

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

### **Other requirements**

Mainly basic module subjects biology, chemistry and biochemistry.

To enrol simultaneously other subject of module of Food Sciences such as Nutrition and Dietetics.

## **OUTCOMES**

### **1212 - Degree in Gastronomic Sciences**

- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Be able to compare the composition and properties (nutritional, technological and beneficial) of different food groups, using food composition tables and databases.
- Be able to carry out the nutritional assessment of any food based on its composition or general or nutritional labelling so that it can be integrated into the food-health binomial.

## **LEARNING OUTCOMES**

Familiarization with and correct use of the terminology of the subject.

Capacity to compare composition and properties (nutritional, technological and beneficial) of the different food groups, using the food composition tables and databases.

Nutritional evaluation of any food, based on its composition or general or nutritional labeling, allowing integration within the food-health binomial.

Knowledge of when, where and how to control food quality.

Knowledge and capacity to use the basic and specialized literature sources, as well as some electronic sources addressing topics related to Bromatology.

Capacity to adequately synthesize and organize information from different sources.

Capacity to correctly express the knowledge gained and relate it to previously acquired data.

Acquisition of a critical and creative approach (initiative and autonomy), combined with scientific rigor, to evaluate and resolve problems.



Cooperation in the context of teamwork, for the exchanging of experiences.

Capacity to apply / develop the acquired knowledge and skills with a personal perspective promoting the development of human rights.

## DESCRIPTION OF CONTENTS

### 1. General

Subject 1.-Food Science. Concept .Academic guidelines

Subject 2.-Food definition. Food classification. Food composition data bases

Subject 3.-Functional foods.

Subject 4.-Food information: food labeling

### 2. Animal foods

Subject 5.-Meat and meats products. Classification. Composition and nutritional value.

Subject 6.-Fish, products of the fish and derivatives. Classification. Composition and nutritional value.

Subject 7.-Eggs and derivatives. Composition and nutritional value. Characteristics of quality.

Subject 8.-Milk and dairy products. Classification. Composition and nutritional value.

### 3. Vegetal foods

Subject 9. Fats. Classification. Fats of animal and vegetal origin. Modified fats. Fat substitutes.

Subject 10. Cereals and derivatives. Classifications .Wheat and rice: structure and grain composition.

Flour: composition. Bread. Bakery products. Composition and nutritional value. Breakfast cereals.

Subject 11. Vegetables. Classification. Composition and nutritional value.

Subject 12. Tubercles. Composition and nutritional value.

Subject 13. Vegetables and derivatives .Classification. Composition and nutritional value. Commercial presentations.

Subject 14. Fruits and derivatives. Classification. Composition and nutritional value. Commercial presentations.

### 4. Beverages

Subject 15. Water. Potable water. Packaged drink waters.

Subject 16. Alcoholic beverages .Classification. Composition and nutritional value.

Subject 17. Non- Alcoholic beverages .Classification. Composition and nutritional value.

**5. Others**

Subject 18.- Coffee, tea, cacao and derivatives. Composition and nutritional value

Subject 19.- Natural sweeteners: Sugar and honey. Composition and nutritional value. Parameters of quality

Subject 20.- Condiments and spices. Classification. Salt and vinegar.

**6. Laboratory and informatics sessions**

1 Oils: Degree of acidity, peroxide index, UV absorption

2 Fruit juices: vitamin C, density and Brix degrees. Non-alcoholic beverages: quinine

3 Vegetable canned foods: net and slipped weight, pH, acidity, chlorides.

One informatic session (5 h): Foods comparisons: Composition and nutritional values. Uses of printed and on-line food composition databases and food labeling.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	45,00	100
Laboratory practices	10,00	100
Computer classroom practice	5,00	100
Development of group work	20,00	0
Study and independent work	66,00	0
Readings supplementary material	4,00	0
<b>TOTAL</b>	<b>150,00</b>	

**TEACHING METHODOLOGY**

Theoretical classes: 43 hours / course. Classes are taught with the help of audiovisual technical material. The student will have, beforehand, this material in the virtual platform.

Seminars: 2h / course. Two uncoordinated seminars, on topics facilitated by the teacher and related to the subject. The seminars will be presented in writing.

Practical classes (laboratory and computer): 20 hours / course. Three sessions of practical laboratory classes and a computer classroom session. The teacher will provide in advance the notebook with the procedures that will be available in the virtual platform.

Students must prepare a file, in the format that will be provided in advance, of each of the laboratory practices that will include: objective, description of the sample, experimental data, calculations, interpretation of the results and bibliography used. At the end of each practice they must prepare and deliver the corresponding card.



In the case of computer science practices, students will do a job, consisting of comparing the composition and nutritional value of specific prepared foods or dishes, which they will present in writing. The report must be presented the week following the end of the internship.

## EVALUATION

**1.- Theoretical and practice written exam:** The exam material will include the subjects presented during the theoretical classes and laboratory and computer room sessions, involving open and short questions or alternative response questions (true-false), with due reasoning and short questions and the numerical solving of practical cases.

This exam will represent **60%** of the final mark. A minimum of **5/10 points** is mandatory to pass the subject.

**2.-Seminars:** The seminars will contribute **15%** to the final grade, and it will be evaluated student attitude and reply to the questions presented in writing and/or by means a Task in the Virtual Classroom.

**3.- Online tests in the Virtual Classroom:** at the end of each block of the syllabus, continuous online evaluation will be carried out using an objective test (with, among others, multiple choice questions, true / false, pairing and / or fill in the gaps) with reasonable limited time, questions appearing randomly for each person. This tests will represent **15%** of the final mark.

**3.-Practical sessions:** Evaluation will be made of the drafting of memoranda and of student attitude in conduction of the practical sessions. This test will represent **10%** of the final mark.

Students which did not pass the theoretical and practical examination, their marks from the practical session will be saved during the next two years. After this period, students must repeat again the practical session.

### Remember:

**-Participation in the seminars and practical sessions, and performance of online tests is compulsory the first year in order to pass the subject.**

**- Students who are repeating the subject, marks from the seminars and online tests will be maintained. Marks corresponding to the lab report will be maintained for the following two years after their performing. After this period, lab sessions will have to be repeated.**

**-If the student pass seminars and online tests, but he/she do not perform the theoretical -practical exam, the mark will be Non presented (in the first call of the course) or Fail (in the second and subsequent calls)**

**-The subject will not be considered approved, although a mark of 5 is achieved by the sum of the marks for seminars, online tests, practice and theory, if marks do not met the minimum requirements described in the evaluation section.**





## REFERENCES

### Basic

- Referencia b1: ASTIASARÁN I., MARTÍNEZ J.A. Alimentos. Composición y Propiedades. McGraw-Hill: Interamericana. Madrid. 2000.
- Referencia b2: BELITZ H.D., GROSCH W. Química de los alimentos. 3ª ed. Acribia Zaragoza. 2012
- Referencia b3: BELLO GUTIÉRREZ J. Ciencia bromatológica. Principios generales de los alimentos. Díaz de Santos. 2000.
- Referencia b4: FENNEMA O. Química de los alimentos. Médica Panamericana. Madrid. 2010.
- Referencia b5: GIL HERNANDEZ A. Tratado de Nutrición. Tomo 3. Composición y Calidad Nutritiva de los alimentos. 3º Ed. Editorial Panamericana. Madrid. 2017.
- Referencia b6: ORDÓÑEZ J.A. (Editor). Tecnología de los Alimentos. Vol 1 y 2. Alimentos de origen animal. Síntesis. Madrid. 1998.
- Referencia b7: PRIMO YÚFERA, E. Química de los Alimentos. Síntesis. Madrid. 1997

### Additional

- Referencia c1: ALAIS CH. Ciencia de la leche 2ª ed. Reverté. Barcelona. 1985
- Referencia c2: ALEIXANDRE BENAVENT J.L. Vinos y bebidas alcohólicas. Universidad Politécnica de Valencia. Valencia. 1999.
- Referencia c3: Cuadernos CDTI. Tecnología de los Alimentos. Departamento de estudios y documentación del Centro para el desarrollo tecnológico industrial. Madrid. 1993.
- Referencia c4: DE LAS CUEVAS INSA V. Trazabilidad básico. Ideas propias. Vigo. 2006.
- Referencia c5: HOSENEY R. Principios de ciencia y tecnología de los cereales. Acribia Zaragoza. 1991.
- Referencia c6: PRICE J.F., SCHWEIGERT BS Ciencia de la carne y de los productos cárnicos. 2ª Edición Acribia Zaragoza. 1994.
- Referencia c7: RUITER A. (Coordinador) El pescado y los productos derivados de la pesca: composición, propiedades nutritivas y estabilidad. Acribia. Zaragoza. 1999.
- Referencia c8: ADRIAN P., POIFFAIT D. Análisis nutricional de los alimentos. Ed Acribia. Zaragoza. 2003.
- Referencia c9: PERIS TORTAJADA M. Problemas y cuestiones de análisis de alimentos. Universidad Politécnica de Valencia. Valencia. 1999.
- Referencia c10: CESNID (Centre dEnsenyament Superior de Nutrició I Dietética) Tablas de composición de alimentos por medidas caseras de consumo habitual en España. McGraw-Hill Interamericana. Barcelona. España. 2008.
- Referencia c11: SOUCI SW. FACHMAN W. KRAUT H. Food composition and nutrition tables. Die Zusammensetzung der Lebensmittel Nährwert-Tabellen.



## ADDENDUM COVID-19

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

### 2. Workload and time schedule of the subject taught

The teaching planning of the different activities in volume of work (ECTS), in days and hours, is maintained throughout the teaching period of the subject.

All evaluable activities (theory classes, seminars and practices) will be carried out respecting the workload of the teaching guide and the schedules established in the academic calendar.

### 3. Teaching Method

**-Theoretical classes:** upload to the Virtual Classroom of the materials for the theoretical classes (slides and complementary material) including at the end of each topic questions to clarify and reinforce the exposed contents. Online classes will be held through synchronous BBC videoconference.

**-Seminars:** upload to the virtual classroom of tutoring with proposed and evaluable activities, to be delivered through the "Task" option (setting the delivery time), with resolution of doubts by the usual system of non-regulated tutorials, as well as by forum enabled in virtual classroom. Discussion and correction in classroom on the established Schedule or virtually if the situation does not allow it.

**-Practices:** 50% of the practices will be theoretical and the other 50% not theoretical. For no presencial practices, one of the following methodologies will be used: synchronous BBC videoconferences, viewing of didactic videos and / or exercises proposed through the "Task" option of the Virtual Classroom.

### 4. Evaluación Assessment

The proportion of the different evaluable activities is maintained on the final grade established in the 2020-2021 teaching guide, consisting on theoretical-practical test (60%), online tests of continuous evaluation (15%), non-coordinated seminars (15%), and memory -internship sheets (10%).

A face-to-face evaluation of the theoretical-practical evaluation test is foreseen with questions of the same type indicated in the teaching guide 2020-2021 of reasonable limited time (not exceeding 2h). If the sanitary conditions did not allow it, the evaluation would be transformed into an online model.