

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

Code	36369
Name	Bromatology
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

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

Subject-matter

Degree	Subject-matter	Character
1212 - Degree in Gastronomic Sciences	11 - Bromatology	Obligatory

Coordination

Name	Department
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.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

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.
- Ser capaz de comparar la composición y las propiedades (nutritivas, tecnológicas y beneficiosas) de los distintos grupos de alimentos, utilizando las tablas y bases de datos de composición de los alimentos.
- Ser capaz de realizar la evaluación nutricional de cualquier alimento en base a su composición o etiquetado general o nutricional, que le permita integrarlo en el binomio alimentación-salud.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

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. Health claims.

Subject 4.-Food information: food labeling

2. Animal foods

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

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 of 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 derivates .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
TOTAL	150,00	

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. At the end of each thematic block, the teacher will be able to use ICT tools to reach the most relevant concepts. It will be contemplated to relate the issues with aspects of the Sustainable Development Goals (SDG) more related to the matter.

Seminars: 2h / course. Two non-coordinated 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 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: VALERO GASPAR T, RODRÍGUEZ ALONSO P, RUIZ MORENO E, ÁVILA TORRES jm VARELA MOREIRAS G. La alimentación española. Características nutricionales de los principales alimentos de nuestra dieta. Ministerio de Agricultura, Pesca y Alimentación y Fundación Española de la Nutrición. Madrid 2018. Disponible : <https://www.fen.org.es/storage/app/media/imgPublicaciones/2018/libro-la-alimentacion-espanola.pdf>
- 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: ORDOÑEZ 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: Cuadernos CDTI. Tecnología de los Alimentos. Departamento de estudios y documentación del Centro para el desarrollo tecnológico industrial. Madrid. 1993.
- Referencia c2: DE LAS CUEVAS INSA V. Trazabilidad básico. Ideas propias. Vigo. 2006.
- Referencia c3: ADRIAN P., POIFFAIT D. Análisis nutricional de los alimentos. Ed Acribia. Zaragoza. 2003.
- Referencia c4: 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 c5: SOUCI SW. FACHMAN W. KRAUT H. Food composition and nutrition tables. Die Zusammensetzung der Lebensmittel Nährwert-Tabellen.
- Referencia c6: https://www.aesan.gob.es/AECOSAN/web/home/aecosan_inicio.htm
- Referencia c7: <http://www.consumer.es/>
- Referencia c8: <http://fnic.nal.usda.gov/>
- Referencia c9: <http://www.mapa.gob.es/es/>



- Referencia c10: <https://www.mapa.gob.es/es/alimentacion/legislacion/>
- Referencia c11: <http://www.fao.org/fao-who-codexalimentarius/standards/en/>
- Referencia c12: <http://www.alimentacion.es/>
- Referencia c13: <https://www.agenda2030.gob.es/objetivos/home.htm>

