COURSE DATA

Data Subject

Code	33942
Name	Bromatology
Cycle	Grade
ECTS Credits	10.5
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1205 - Degree in Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	2	Annual
1211 - Double Degree in Pharmacy and Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	3	Annual

Subject-matter

Degree	Subject-matter	Character
1205 - Degree in Human Nutrition and Dietetics	10 - Bromatology	Obligatory
1211 - Double Degree in Pharmacy and Human Nutrition and Dietetics	1 - Asignaturas obligatorias del PDG Farmacia-Nutrición Humana y Dietética	Obligatory

Coordination

Name	Department
ALEGRIA TORAN, AMPARO ASUNCION	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
CILLA TATAY, ANTONIO	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
MECA DE CARO, GIUSEPPE	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, properties and quality parameters.

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, general chemistry and organic.
To enrol simultaneously other subject of module of Food Sciences such as Food Chemistry and Food Technology.

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

1205 - Degree in Human Nutrition and Dietetics

- Reconocer los elementos esenciales de la profesión del dietista-nutricionista, incluyendo los principios éticos, responsabilidades legales y el ejercicio de la profesión, aplicando el principio de justicia social a la práctica profesional y desarrollándola con respeto a las personas, sus hábitos, creencias y culturas, con perspectiva de género.
- Know, judge and know how to use and apply the sources of information related to nutrition, food, lifestyles and health.
- Desarrollar la profesión con respeto a otros profesionales de la salud, adquiriendo habilidades para trabajar en equipo.
- Recognise one's own limitations and the need to maintain and update professional competence, with particular emphasis on independent and lifelong learning of new facts, products and techniques in the field of nutrition and food, and on motivation for quality.
- Realizar la comunicación de manera efectiva, tanto de forma oral como escrita, con las personas, los profesionales de la salud o la industria y los medios de comunicación, sabiendo utilizar las tecnologías de la información y la comunicación especialmente las relacionadas con nutrición y hábitos de vida.

- Identify and classify food and food products. Know how to analyse them and determine their composition, properties, nutritional value, bioavailability, organoleptic and sensorial characteristics and alternations resulting from technological and culinary processing.
- Interpretar y manejar las tablas y bases de datos de composición de alimentos.
- Adquirir la formación básica para la actividad investigadora, siendo capaces de formulas 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 en materia sanitaria y nutricional.
- Interpretar los informes y expedientes administrativos en relación a un producto alimentario e ingredientes.
- Be familiar with discipline-specific terminology.
- Acquire capacity to assess the impact of the consumption of food on the health of the population.
- Know the general and specific parameters of quality for each food group.

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.
Subject 3. Books and food composition date bases. Food analysis.
Subject 4. Functional foods. Health claims.
Subject 5. Quality of foods. Criteria of quality. Typology (health, sensorial, nutritional and technological).
Subject 6. Food information: food labeling.

2. Animal foods

Subject 7. Meat and meats products. Classification. Composition and nutritional value. Animal fats. Characteristics of quality.
Subject 8. Fish, products of the finish and derivates. Classification. Composition and nutritional value. Characteristics of quality.
Subject 9. Eggs and derivates. Composition and nutritional value. Characteristics of quality.
Subject 10. Milk and dairy products. Classification. Composition and nutritional value. Characteristics of quality.

3. Vegetable foods

Subject 11. Fats of vegetal origin. Modified fats. Fat substitutes. Quality parameters.
Subject 12. Cereals and derivatives. Classifications. Pseudocereals. Wheat and rice: structure and grain composition. Flour: composition. Bread. Bakery products. Composition and nutritional value. Breakfast cereals. Quality parameters.
Subject 13. Vegetables. Classification. Composition and nutritional value. Criteria of quality-
Subject 14. Tubercles. Composition and nutritional value.
Subject 15. Vegetables and derivates .Classification. Composition and nutritional value. Commercial presentations. Criteria of quality.
Subject 16. Fruits and derivates. Classification. Composition and nutritional value. Commercial presentations. Criteria of quality. Dried fruits and nuts.

4. Beverages

Subject 17. Water. Potable water. Packaged drink waters. Parameters of quality.
Subject 18. Alcoholic beverages. Classification. Fermented beverages. Distilled beverages. Composition and nutritional value.
Subject 19. Non- Alcoholic beverages. Classification. Composition and nutritional value.

5. Others

Subject 20. Coffee, tea, cocoa and derivatives. Composition and nutritional value.
Subject 21. Natural sweeteners: Sugar and honey. Confectionery products. Composition and nutritional value. Parameters of quality
Subject 22. Condiments and spices. Classification. Salt and vinegar. Spices.

6. Laboratory and informatics sessions

Laboratory sessions (4h/session)
1 Oils: Degree of acidity, peroxide index, UV absorption
2 Fruit juices : vitamin C, density and Brix degrees.
Milk: Dry extract, ashes, humidity.
3 Vegetable canned foods: Net and slipped weigth, pH, acidity, chlorides
4 Coffee: cafein determination.
Non-alcoholic beverages: Quinine determination
5 Eggs: Traceability. Quality parameters. Cholesterol determination

Two informatic sessions (2x 2,5 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	65,00	100
Laboratory practices	25,00	100
Seminars	5,00	100
Tutorials	4,00	100
Development of group work	25,00	0
Study and independent work	100,00	0
Preparation of evaluation activities	20,00	0
Preparation of practical classes and problem	12,50	0
TOTAL	**256,50**	

TEACHING METHODOLOGY

Theoretical classes: 65 hours / course. The classes are imparted with the support of technical audiovisual material. This material will be previously made available to the student through the virtual platform. At the end of each thematic block, the teacher will be able to use TIC tools to achieve 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: Five seminars, four coordinated, on topics provided by the teacher related to the subject (some of them related to the SDGs most aligned with the subject). The seminars will be supervised through tutorships, arranged between the teacher and students. The seminars will be developed in writing and will be presented by the students. Following the verbal presentation, the rest of the students will have the opportunity to intervene, moderated by the teacher. It will follow the guidelines on coordinated seminars available at the web page of the Faculty.

In the case of Double Degree (Pharmacy and HND) the seminars will not be coordinated.

Practical classes (laboratory and software): 25 hours/course. Five practical laboratory classes with duration of four hours, and two computer room sessions with duration of two hours and a half. The teacher will previously distribute a booklet with the procedures, which will be available through the virtual platform.

The students will have to elaborate a memorandum, in the format that will facilitate him previously, of each of the practices of laboratory that it will include: objective, sample description, experimental data, calculation, interpretation of results and references used. They must elaborate and deliver the corresponding memorandum on having finished every practice.

In the case of the two practical computer sessions, the students will carry out a work involving comparison of the composition and nutritional value of specifically prepared dishes or foods, to be presented in writing. The memoranda are to be presented during the one week following conclusion of the practical classes.

Tutoring: Four tutorships are contemplated, each with duration of one hour, per group of students. The students will establish the doubts on the subject, with short questions and/or previously supplied problems through the virtual platform.

EVALUATION

1.- Theoretical written exam: The exam material will include the subjects presented during the theoretical classes involving open and short questions or alternative response questions (true-false), with due reasoning, type test. In the case of the Double Degree (Pharmacy and HND) it will be possible to include questions related to topics covered in the seminars.

Continuous evaluation will be carried out in both semesters with various tests representing **60%** of the final mark. It is required to obtain a minimum of 5 points out of 10 in the sum of all the tests carried out per semester. The mark of the test of the first semester only will be saved for the official examination sessions. If the student does not take part in the continuous evaluation they will take the officially scheduled tests.

2.-Seminars: The coordinated seminars (one each semester) will contribute **10%** to the final grade, and the aspects relating to evaluation will be those agreed for coordinated seminars, together with the evaluation rubrics and the memory checklist (to be made public through the virtual platform of the Center, Grado de Nutrición Humana y Dietética). The student must write a report in relation to the seminary about food science matter. Evaluation will be made on the written work, presentation, defense, the level of understanding of the contents and of the skills in his/her presentation and discussion.

In the case of the Double Degree (Pharmacy and HND), it will be evaluated written work, presentation, defense and proposed activities up to 10% of the final mark.

3.-Tutoring: Evaluation will be made on the reply to the questions presented in writing as homework in the virtual platform. Tutoring will contribute **10%** to the final grade.

4.-Practical sessions: Evaluation will be made of the drafting of memoranda of the practical sessions. This test will represent **10%** of the final grade. In addition, a written test will be taken at the end of the last computer practice that will contribute **10%** to the final grade.

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.

Participation in the tutorships, seminars and practical sessions is compulsory the first year in order to pass the subject.

Remember:

-Two coordinated seminars (one for each semester) are required to pass the matter.

- Students who are repeating the subject, marks from the tutorials and seminars 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.

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

REFERENCES

Basic

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- GIL HERNANDEZ A. Tratado de Nutrición. Tomo 2. Composición y Calidad Nutritiva de los alimentos. Médica Panamericana. Madrid. 2017.
- 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
- ORDOÑEZ J.A. (Editor). Tecnología de los Alimentos. Vol 1 y 2. Alimentos de origen animal. Síntesis. Madrid. 1998.
- PRIMO YÚFERA, E. Química de los Alimentos. Síntesis. Madrid. 1997

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- - Cuadernos CDTI. Tecnología de los Alimentos. Departamento de estudios y documentación del Centro para el desarrollo tecnológico industrial. Madrid. 1993.
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