

**COURSE DATA****DATA SUBJECT**

Code: 34109
Name: Nutrition and Food Science
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1201 - Degree in Pharmacy	Facultat de Farmàcia i Ciències de L'alimentació	3	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1201 - Degree in Pharmacy	Human feeding	COMPULSORY

COORDINATION

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SUMMARY

Nutrition and food science is a main subject which is taught during the first semester in the third year of the degree in Pharmacy and comprises a total of 6 credits (1 credit ECTS = 25 h). This subject is, along with Dietotherapy, part of the matter of Human Feeding, provided in the module of medicine and pharmacology. This course aims to provide the student with the basic knowledge on nutritional needs of the organism and the nutrients that satisfy them. In addition, it is also intended that the gain an understanding of the main (biotic and abiotic) contributors to food toxicity and ways to prevent food poisoning, to interpret legislation in all aspects related to food and to be trained in the physico-chemical analysis of nutrients and contaminants in raw materials and foodstuffs.

These approaches and objectives are aligned with the all the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning outcomes of the subject provides training and competence to contribute to some extent to their achievement (as indicated in the outcomes part). However, Goal 2: Zero hunger, Goal 3: Health and well-being, Goal 4: Quality education, Goal 5: gender equity, Goal 6: Clean water and sanitation, Goal 12: Responsible production and consumption and Goal 13: Climate action are more strongly related to Nutrition and Food Chemistry. Examples of applications of the subject content in relation to the Sustainable Development Goals (SDGs) as well as in the proposed topics for the coordinated seminars. The aim is to provide students with students with the knowledge, skills and motivation to understand and address the SDGs.



As professionals in the area of Health Sciences, graduates will not be able to avoid the use of these highly topical concepts in their professional future.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

The study of the subject of "Nutrition and Food Science" is based on the practical implementation of many of the knowledge gained in other subjects of first and second course, such as "Physiology", "General chemistry", "Analytical techniques" and "Biochemistry".

COMPETENCES / LEARNING OUTCOMES

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Acquire the necessary knowledge to assess the suitability of food for consumption.

Act with autonomy in learning, making informed decisions in different contexts, issuing judgements based on experimentation and analysis, and transferring knowledge to new situations.

Apply such knowledge to the professional world, contributing to the development of human rights, democratic principles, principles of equality between women and men, solidarity, environmental protection and promotion of a culture of peace with a gender pe

Apply the scientific method and acquire skills in handling legislation, information sources, bibliography, drafting of protocols and other aspects considered necessary for the design and critical evaluation of preclinical and clinical trials.

Collaborate effectively in work teams, assuming responsibilities and leadership roles and contributing to collective improvement and development.

Contribute to the design, development and implementation of solutions that respond to social demands, taking into account the Sustainable Development Goals as a reference.

Demonstrate critical and self-critical thinking in the field of the degree programme, considering aspects such as professional ethics, moral values and the social implications of the different activities carried out.

Develop communication and information skills, both oral and written, to deal with patients and other health professionals in the centre where professional activity is carried out. Promote teamwork and collaboration skills in multidisciplinary teams and wi

Develop skills to update knowledge and undertake further studies, including pharmaceutical specialisation, scientific research, technological development and teaching.

Know and apply basic bromatological analyses to assess the composition and nutritional value of the



different food groups that form part of the normal diet.

Know and manage the basic terminology of nutrition, bromatology, dietetics and diet therapy.

Know and understand, within the field of the degree programme, gender inequalities in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem solving.

Know how to communicate effectively, both orally and in writing, adapting to the characteristics of the situation and the audience.

Know how to interpret, evaluate and communicate relevant data in the different areas of pharmaceutical activity, using information and communication technologies.

Know nutrients and other components of nutritional interest, as well as sources, recommendations and health implications of their deficiencies and/or excesses.

Module: Medicine and Pharmacology. Acquire the necessary skills to provide therapeutic advice in pharmacotherapy and diet therapy, as well as nutritional and dietary advice to users of the establishments where service is provided.

Module: Medicine and Pharmacology. Understand the relationship between diet and health, and the importance of diet in the treatment and prevention of diseases.

Possess and understand knowledge in the different areas of study included in pharmacist training.

Propose creative and innovative solutions to complex situations or problems within the field of knowledge, to respond to diverse professional and social needs.

Recognise one's own limitations and the need to maintain and update professional competence, placing particular emphasis on self-learning of new knowledge based on available scientific evidence.

Transmit ideas, analyse problems and solve them with critical spirit, acquiring teamwork skills and assuming leadership when appropriate.

Understand the relationship between food and health and the importance of diet in the treatment and prevention of disease, considering gender biases.

DESCRIPTION OF CONTENTS

1. Basic Nutrition

Lessons:

1.-Food science, nutrition and dietetics. Objectives of the Bachelor of pharmacy education. Bibliographical sources.

2.-Food and nutrition. Food: Concept and classification. Nutrients: Concept and classification. Bioavailability of nutrients. Other components of the food. Relationship between food and health.



- 3.-Requirements and recommendations. Concept. Types of nutritional needs of the human organism. Available nutritional recommendations. Nutritional objectives. Dietary guidelines. Energy needs.
- 4.-Components of energy expenditure. Basal metabolism: concept, factors that influence, calculation and determination. Energy expenditure linked to physical activity. Food thermogenic effect.
- 5.-Carbohydrates. Classification and description. Functions. Recommendations. Dietary sources. Dietary fiber. Composition. Properties. Recommendations. Dietary sources.
- 6.-Lipids. Classification and description. Functions. Requirements and recommendations. Dietary sources.
- 7.-Proteins. Classification. Functions. Criteria for essentiality and complementarity of the amino acids. Evaluation of the quality of the protein. Recommendations. Dietary sources.
- 8.-Water as nutrient: functions, requirements and recommendations.
- 9.-Mineral salts. Classification. Elements controlling functions, requirements and recommendations. Dietary sources. Trace elements.
- 10.-Vitamins. Concept. Water-soluble vitamins. Functions. Needs. Recommendations. Dietary sources.
- 11.-Vitamins and provitamins fat-soluble. Functions. Needs. Recommendations. Dietary sources.
12. Nutrition in the life stages

2. Food Science

The composition of foodstuffs, taking into account modifications suffered during processing, developing nutritional, hygiene and health aspects of the different groups of food in relation to consumers.

Lessons:

- 1.- Milk. Structure, stability, and conservation.
- 2.- Meat, fish and eggs. Post-mortem changes. Processed products.
- 3.- Edible fats. Olive oil and vegetable oils. Modified fats. Stability and conservation.
- 4.- Grain. Wheat flour. Bread and pasta. Pastry and confectionery.
- 5.- Vegetables. Production of canned goods. Dried fruits.
- 6.- Vegetables and fruits. Tubers. Cooking and other culinary processes.
- 7.- Water for public consumption. Potabilization.

3. Food Analysis

Analytical aspects of food, aimed to acquire practice in basic food analysis: centesimal precisions composition, quality control and determination of additives, to interpret the overall quality of the raw materials and food.

Practice sessions:

- 1.- The moisture determination in food
- 2.- Identification of the proteins of milk
- 3.- Measurement of the density of milk
- 4.- Determination of lipid content of dried fruits
- 5.- Determination of reducing sugars in milk
- 6.- Determination of minerals
- 7.- Investigation and determination of active chlorine in water



- 8.- Determination of tartrazine in a food dye
- 9.- Determination of vitamin C in fruit juices
- 10.- Study of a vegetable canning
- 11.- Determination of alcohol by IR
- 12.-Energetic balance

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	3,00
Theory	33,00
Seminar	4,00
Laboratory	20,00
Total hours	60,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	20,00
Independent study and work	35,00
Preparation of lessons	32,00
Preparation for assessment activities	1,00
Resolution of case studies	2,00
Total hours	90,00

TEACHING METHODOLOGY

The development of the course is structured in:

Theory classes: Master class will basically be used in theory classes. The teacher will present the most relevant content on the subject, using audiovisual media necessary for the quick and consistent development of the master classes. The teacher will leave accessible in advance on the platform of teaching "Virtual Classroom", the supporting material need for proper follow-up of theory classes. The theoretical classes enable notably the acquisition of knowledge, and to a lesser extent contribute to the acquisition of procedures and attitudes.

Practical laboratory sessions are mandatory. These practices are carried out in five sessions of 4 hours. During the sessions, a "Notebook of practices" with a short theoretical introduction to the practice and the detailed protocol to be followed will be available. During each session students will have to fill the practice workbook, including chemical reactions and the mathematical calculations needed to obtain the results and the final solution. The notebook of practices will be delivered during the week following the completion



of the practices and will be corrected by the teacher. The most representative calculations made previously by the student in their time of study will be reviewed during classes. Practical classes contribute primarily to the acquisition of skills, and to a lesser extent to the attitudes and knowledge.

Seminars: The seminars will consist of a work with ICTs and study cases discussion.

Tutorials: The students will be organized in smaller groups and will be in total 3 evenly distributed at the beginning, middle and end of the semester. The duration of these tutorials will be 1 hour. The tutorials will serve to resolve all doubts that have been able to arise over the theoretical and practical classes.

EVALUATION

According to those established in the matter of Human Food, the evaluation of the learning of knowledge, competences and skills shall be made in the form of continued assessment throughout the course. Evaluable parameters are: a) individual and/or collective memories of exercises relating to various activities in classroom and in the laboratory, which will assess the acquisition of skills and attitudes defined ad hoc for the matter, as well as the work carried out by the student and the apprehension of procedures and basic concepts, b) paper written in which will assess the level of general knowledge of theoretical concepts and procedures, c) attitude of the student (valuable from the collective and individual tutorials, practical classes and seminars displayed and discussed in the classroom).

The evaluation will be distributed as follows:

Acquisition of theoretical concepts and written tests.

Practical sessions and case studies will contribute to the final note, considering the following points in its evaluation: student attitude, preparation of reports and reports and written tests.

Seminars: the correct presentation and resolution of practical cases will be evaluated. In the case of a presentation will evaluate the scientific content of the work, and the ability of exhibition and discussion with teachers and classmates

The evaluation of the learning of knowledge and skills gained by the students, will be continuously throughout the course. An assessment of the attitude during the classes, including the evaluation of the knowledge acquired from resolution of questionnaires, of the work and seminars carried out by the students, and of the examination will be combined. To pass the subject it is necessary to have obtained a minimum score of 5 out of 10 and pass separately each of the parts.

Evaluation of the theoretical content: the outcome of this evaluation will be 6.0 points in the final score of subject.

The tutorials will qualify with 0.5 points. In this score, in addition to the solution of the proposed tasks, delivery in time and form will be taken into account.



Evaluation of the laboratory practical classes: the qualification obtained in this assessment will be 2.5 points of the final score of the subject. Laboratory practical classes will be assessed through attitude and demonstrated aptitude (0.25 p), the correction of laboratory notebooks (0.25 p), and the solution of practical issues in the final exam (2 p).

Evaluation of seminars: will contribute a maximum of 1.0 point to the final score for this subject. The attitude and ability shown as well as the delivery of practical exercises correctly solved within the deadline will be evaluated. In the case of presentations, the scientific content, preparation, communication skills and ability to defend the work with the teacher and classmates will be assessed.

In the case of failing the subject in the second call, laboratory practices should not be repeated during the following two courses.

Students who do not attend to the exam but have participated and have a score in one / some activities (seminars, laboratory, computers, tutorials...) will be scored in the first call as "Not presented", but in the second call, the score will be based on those obtained in the different activities and will consequently appear as ¿Not pass¿.

Copying or plagiarism of any assignment that forms part of the assessment will result in the impossibility of passing the subject, and the student will then be subject to the appropriate disciplinary procedures. Please note that, in accordance with article 13. d) of the University Student Statute (RD 1791/2010, 30 December), it is the duty of a student to refrain from using or cooperating in fraudulent procedures in assessment tests, in the work carried out or in official university documents.

The continuous assessment activities, which in this subject are practices, tutorials and seminars, are of **mandatory attendance** and, therefore, **not recoverable**, in accordance with the provisions of article 6.5 of the UV Assessment and Grading Regulations for Bachelor's and Master's Degrees.

REFERENCES

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- Cameán A. y Repetto M. Toxicología Alimentaria. Díaz de Santos. Madrid 2006.
- Moreira O. Tablas de composición de alimentos. 19ª ed. Pirámide. UCM. Madrid. 2018.
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