

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

Code	33987
Name	Nutrition and Dietetics
Cycle	Grade
ECTS Credits	9.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Faculty of Pharmacy and Food Sciences	3	Annual

Subject-matter

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	25 - Nutrition and dietetics	Obligatory

Coordination

Name	Department
ESTEVE MAS, MARIA JOSE	265 - Prev. Medicine, Public Health, Food Sc., Toxic. and For. Med.

SUMMARY

The subject Nutrition and Dietetics is a compulsory subject, on an annual basis, which is offered in the third year of Food Science and Technology degree. In the current curriculum consists of a total of 9 credits (1 credit ECTS = 25 h). This course is a part, along with "Foundations of Public Health", "Food and culture", "Documentation and scientific methodology", the module of Nutrition and Health. Highlights of each nutrient, useful physiological, biochemical characteristics, metabolism, common food sources, recommended intakes and their imbalance on the health effects, as well as the interactions between nutrients are deeply studied. Review the changes and adjustments that must be performed in different stages of life (from infancy to older persons) and circumstances, as well as laying the groundwork for a diet balanced communities. Analyses the current eating patterns and the pros and cons, from the alimentario-nutricional point of view facing his followers, and the methodology used to assess the nutritional state and the alimentario-nutricionales intakes of individuals and communities. Finally considering the major chronic diseases related to processes of alimentation-nutrition and guidelines hygienic-dietetics that should be followed for prevention, treatment and control.



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From the assignment, it is intended to incorporate the student body in an education process that includes a broad set of knowledge, values, attitudes and skills linked to the concepts of sustainability, contributing to the scope and implementation of the Sustainable Development Goals (SDG). In the Nutrition and Dietetics subject, nine of the objectives will be worked on (SDG 2, 3, 4, 8, 12, 13, 14, 15 and 17), as well as with a strong anchor in the defense of human rights, equality gender and empowerment of women (SDG 5).

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

It is necessary to have studied the subjects earlier scheduled courses in Food Science and Physiology.

OUTCOMES

1103 - Degree in Food Science and Technology

- Capacidad de interpretar datos relevantes.
- Develop skills to undertake further study.
- Poseer y comprender los conocimientos en el área de Ciencia y Tecnología de los Alimentos.
- Saber aplicar esos conocimientos al mundo profesional, contribuyendo al desarrollo de los Derechos Humanos, de los principios democráticos, de los principios de igualdad entre mujeres y hombres, de solidaridad, de protección del medio ambiente y de fomento de la cultura de la paz.



- Carry out staff training.
- Be familiar with the marketing of food products.
- Design and interpret food surveys.
- Asesorar científica y técnicamente a la industria alimentaria y a los consumidores.
- Conocer y comprender la terminología y los procesos relacionados con la nutrición y la dietética.
- Know the bases of energy and nutritional balance and the bases of healthy eating in order to establish a balanced, varied and sufficient diet.
- Know the different eating patterns and habits. Study nutritional objectives and dietary guidelines.
- Study the interactions of and between nutrients that may affect their bioavailability.
- Apply the techniques, methods and tools that allow the assessment of individual nutritional status.
- Know about macro- and micronutrients and other components of food, their function in the organism, food sources, energy value, bioavailability, needs and recommendations, as well as the impact of their deficiency and excess on health.
- Know the metabolic and functional changes that have a nutritional impact on the different stages of the life cycle and modify the diet according to the energy requirements of each developmental stage.
- Understand nutrition and the changes to be made in special situations, according to metabolic adaptations and specific nutritional needs.
- Be informed of the key elements of the operation of the main sectors of mass catering and recommend ways to better serve its feeding and social function in the field of community nutrition and public health.

LEARNING OUTCOMES

Students at the end of the course must be able to:

- Know the bases of energy and nutritional balance and the bases of a healthy diet in order to establish a balanced, varied, sufficient and sustainable diet, as well as know the different eating patterns and habits.
- Know the impact of hunger and malnutrition.
- Establish the food changes necessary to preserve biodiversity and protect the ecosystem.
- Know the macro and micronutrients and other components of food, their function in the body, food sources, energy value, bioavailability, needs and recommendations, as well as the impact of deficiency and excess on health.
- Know the metabolic and functional changes with nutritional repercussions in the different stages of the life cycle and make modifications in the diet according to the energy requirements of each stage of development.



- Apply techniques, methods and tools that allow the assessment of individual nutritional status.
- Know the diet and modifications to be made in special situations, seeing the metabolic adaptations and the specific food-nutritional needs.
- Know the key aspects of the operation of the main sectors within collective catering and recommendations that allow them to better perform their food and social function in the field of community nutrition and public health.
- Being able to promote prevention strategies to promote health and physical and mental well-being from the promotion of a healthy diet.
- Be able to identify opportunities for innovation in sustainability in the agri-food industry and in promoting healthy eating.
- Know and acquire the skills and motivation to understand and address the SDGs in the three dimensions of sustainable development: economic, social and environmental, while acquiring a character of reflection and criticism.

DESCRIPTION OF CONTENTS

1. Introduction to the subject

- 1.1. Food, nutrition and dietetics: concepts and relationships. Historical evolution.

2. Energy and Nutrients

- 2.1 Carbohydrates.
- 2.2 Dietary fiber.
- 2.3 Lipids.
- 2.4 Proteins.
- 2.5 Energy reserve of the body: classification of the energy deposits. General and specific functions. To obtain energy by tissues in different circumstances.
- 2.6 Alcohol.
- 2.7 Water body and fluid and electrolyte balance.
- 2.8 Minerals: macro- and micronutrients.
- 2.9 Vitamins.

3. Nutrition, Health and sustainability

- 3.1. Healthy and sustainable diet. Needs and nutritional recommendations. WHO nutritional targets. Aims for the Spanish population. Dietary guidelines.
- 3.2. Habits, eating patterns and health. Evolution of the energy and nutrient intake.
- 3.3. Mediterranean diet.



4. Feeding at different stages of life

- 4.1. The feeding of healthy adult. Process for the realization of the individualized diet. Criteria for establishing a diet plan.
- 4.2. The nutrition of pregnant and nursing women.
- 4.3 Infant nutrition.
- 4.4. Children in pre-school and school age nutrition.
- 4.5. Teenage nutrition.
- 4.6. The diet of mature persons and during the climacteric.
- 4.7. The nutrition of the elderly

5. Food in special situations

- 5.1. The feeding of athletes.
- 5.2 Vegetarian diet
- 5.3. The collective nutrition.
- 5.4. Metabolic syndrome: obesity, cardiovascular disease, diabetic and lipid disorders

6. Laboratory class

- P1.Nutritional evaluation of menu
- P2. Determination of glucose and fructose in foods
- P3. Alterations in the use of protein
 - 1.Protein in urine protein metabolism: determination of uric serum biochemical
 - 2.Evaluation of nutritional status:
 - protein determination of creatinine
 - determination of serum albumin
- P4 Determination and nutritional appraisal of calcium.
- P5. Evaluation of nutritional status: Anthropometry
- P6. Development of a weekly diet for an individual
- P7. Development of a weekly diet for a collective

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	48,00	100
Laboratory practices	30,00	100
Seminars	4,00	100
Tutorials	3,00	100
Attendance at events and external activities	2,00	0
Development of group work	10,00	0
Development of individual work	8,00	0
Study and independent work	80,00	0
Readings supplementary material	8,00	0
Preparation of evaluation activities	4,00	0
Preparing lectures	6,00	0
Preparation of practical classes and problem	4,00	0
Resolution of case studies	10,00	0
Resolution of online questionnaires	3,00	0
TOTAL	220,00	

TEACHING METHODOLOGY

During the activities, both theoretical and practical, examples of applications of the subject's contents in relation to the Sustainable Development Goals (SDG) will be indicated.

The development of the course is structured in:

Theory classes: carried out in weekly sessions of one hour. In total 48 sessions of an hour are necessary to cover this facet teaching. Master class will basically be used in theory classes and methodologies of inductive learning and flipped classroom. The teacher will present the most relevant content on the subject, using audiovisual media necessary for quick and consistent development of the same. The teacher will leave accessible in advance on the platform of teaching "Virtual Classroom", the necessary material support 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. The Professor will monitor the assistance to them.

Practical laboratory sessions: are compulsory. Carried out in 7 sessions of 4 hours. During the session will have to make a script of the "Notebook of practices" sessions, with a short theoretical introduction of them and the detailed protocol. During each session, the student must fill in the sheets for each of the practices, including the chemical reactions and mathematical calculations necessary to obtain the results and the final solution, and must hand them in at the end of each session. During the classes the most representative calculations will be reviewed, previously carried out by the student during their study time. The practical classes contribute fundamentally to the acquisition of SKILLS, and to a lesser extent to that



of ATTITUDES and KNOWLEDGE. During the internship period in the laboratory, students must properly manage the use of water and waste generated during the same (SDG 6).

Seminars: Are compulsory for students who are enrolled. Two coordinated seminars will be conducted on topics and format proposed by the students and agreed with the teacher, following the guidelines on coordinated seminars available at the web page of the Faculty. The development of the seminar will be monitored through tutorials, to be agreed between the teacher and students. The seminars will be presented in writing and submitted by students. After the oral presentation speaking time will be the other students, moderated by the teacher.

The assessment of this activity will cover both the scientific contents treated as the way in which they have been submitted, particularly assessing the ability of communication and transmission of ideas and concepts, as well as the ability to join a working group. During the development of the coordinated seminars, the inclusion of specific objectives for one or more SDGs will be considered.

Tutorials: Are compulsory attendance and students will come to them in organized groups and will be in total 3 evenly distributed at the beginning and end of the semester. The duration of these tutorials will be 1 hour. Students raised doubts about the subject, as well as the short questions and/or problems given previously in the virtual platform.

The professor will evaluate the learning process of students in a global manner and guide students on the methods of work more useful for the resolution of problems that might arise.

Tasks: throughout the course the student will arise a number of practical issues and problems

Complementary activities: Throughout the course, other activities can be proposed that complement the student's training, such as participation in the MOTIVEM ideas contest and participation in the multidisciplinary Service Learning project (Aps) of the Faculty of Pharmacy of the University of Valencia that It will allow them to detect problems and respond to society within the framework of sustainable development through social, ecological, economic and cultural consideration from the perspective of the principles and values of sustainable development.

EVALUATION

The evaluation of learning of the knowledge, competitions and skills will be carried out in the shape of evaluation continued along the course. There will be considered to be parameters evaluables: a) theoretical-practical final written test in which there will be evaluated the grade of general knowledge of theoretical concepts and procedures presented for every topic; b) achievement of individual and/or collective memoirs of exercises relative to the different activities in classroom, computer classroom and in the laboratory, in that ad will evaluate the acquisition of skills and definite attitudes hoc for the matter, as well as the work developed by the student and the apprehension of procedures and basic concepts; c) preparation and participation in seminars: written work and exhibition (the scientific content of the work will be evaluated, and the capacity of exhibition and debate with the teachers and partners, as well as the integration capacity in the group of work; d) other tasks proposed along the course, whose(which) achievement he(she) will announce the students to himself with enough advance; e) student attitude (valuable from the individual and collective tutorships, and the participation in the practical classes and seminars exposed and debated in the classroom); f) assistance to class.



Evaluation of the theoretical contents: The evaluation will be carried out through theoretical questions in a written exam, as well as in case of carrying out questionnaires or activities for the preparation of the theoretical classes, they will also be taken into account for the final theory grade (20% of the evaluation of the theoretical contents). The result of this evaluation will represent **60%** of the final grade of the subject.

Evaluation of the practical lab classes: the qualification obtained in this evaluation will represent **20%** of the final grade for the course. 25% of the practical classes will be evaluated through the attitude and demonstrated aptitude (care and use of the material, carrying out calculations, recording all the work carried out in the laboratory, preparation of the practicals, ...) and the delivery of the files to the end each of the sessions. On the last day of practice there will be a written exam with practical questions (theoretical concepts, calculations and interpretation of the results) that will represent 75% of the practice mark.

Evaluation Tutorship: the evaluation of this section will represent **5%** of the final grade for the course. In this qualification will take into account the resolution of the tasks proposed (the note will be distributed according to the number of tasks and/or proposed issues). Be taken into account also the assistance to them; not attend them, will be scored zero.

Evaluation of tasks: the evaluation of this section will represent **5%** of the final grade for the course. In this qualification will take into account the resolution of the tasks proposed at class or "virtual class", different laboratory practices and Tutorship (the note will be distributed according to the number of tasks and/or proposed issues).

Evaluation of the seminars: the seminar held will contribute a **10%** to the final note of this subject. You will be assessed the work performed, both the scientific content of the work, like the work of preparation of the same and the ability to expose it in public and discuss it with the teacher and classmates, as well as its integration into the group. Be taken into account also the assistance to them; not attend them, will be scored zero.

Cannot be condoned the subject if either of these circumstances:

1. Did not obtain at least 45% of the score assigned to theoretical exam.
2. Did not obtain at least 50% of the score assigned to theoretical content.
3. That the overall rating of the subject is less than 5.



In the case of suspend the subject in the first call, only will be saved until the second call the obtained note in the realization of laboratory and booklets corresponding to the same practices and the note corresponding to tutoring, homework and seminars. In no event will be saved the obtained note in the test (not even the correspondent to the theoretical questions not recounted to the practical questions of the same one), task and Tutorship.

In the case of suspending the course in second call, laboratory practices must not repeat them during the two following years.

Repeat students of the subject must attend again the tutorships in the second and subsequent registrations, NOT keeping attendance or previous notes.

Repeat students of the subject who cannot attend tutorials and seminars again must duly justify it.

The students who were not submitted to the written exam will be rated as **not presented**.

REFERENCES

Basic

- Referencia b1: Aranceta Bartrina, J et al. Guía de la alimentación saludable : para atención primaria y colectivos ciudadanos : recomendaciones para una alimentación individual, familiar o colectiva saludable, responsable y sostenible Barcelona : Sociedad Española de Nutrición Comunitaria : Planeta, [2018]
- Referencia b2: Brown, J.E. Nutrición en las diferentes etapas de la vida. México : McGraw Hill Interamericana, cop. 2014
- Referencia b3: Byrd-Bredbenner, C.et al. Perspectivas en nutrición. México D.F. : McGraw-Hill, 2014
- Referencia b4: Gil Hernández, A. Tratado de Nutrición. Madrid: Editorial Médica panamericana, [2017].
- Referencia b5: Mahan, L.; Scott-Stump, S. Nutrición y Dietoterapia de Krause (14ª ed.) Barcelona: Elsevier, [2017]
- Referencia b6: Soriano JM. Nutrición básica humana. Universitat de València 2006.



Additional

- Referencia c1: Cuervo, M. et al. Ingestas Dietéticas de Referencia (IDR) para la población española / []; Federación Española de Sociedades de Nutrición, Alimentación y Dietética (FESNAD). Pamplona : Eunsa, 2010
- Referencia c2: Mataix J. Tablas de composición de alimentos. 4ª ed. Universidad de Granada 2003.