



Information about the subject

Degree: Bachelor of Science Degree in Human Nutrition and Dietetics

Faculty: Faculty of Medicine and Health Sciences

Code: 1312001 **Name:** Functional and Nutraceutical Food

Credits: 6,00 **ECTS Year:** 4 **Semester:** 1

Module: Eligibility Module

Subject Matter: Functional Foods and Nutraceuticals **Type:** Elective

Department: Nutrition

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

OP01 David Exposito Blasco (**Responsible Lecturer**)

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Module organization

Eligibility Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
ICT	6,00	ICTs	6,00	4/1
Community Health Care	6,00	Attention in Community Health	6,00	This elective is not offered in the academic year 24/25
Functional Foods and Nutraceuticals	6,00	Functional and Nutraceutical Food	6,00	4/1
Food microbiology	6,00	Food Microbiology	6,00	4/1
Promoción y Programas de Estilos de Vida Saludables	6,00	Promotion and Programmes of Healthy Lifestyles	6,00	This elective is not offered in the academic year 24/25

Recommended knowledge

There are no established pre-requisites



Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Understanding and assimilation of the concepts included in the course content.
- R2 Ability to solve problems related to these contents using different resources .
- R3 Understanding and proper use of language, as well as correct writing and presentation of data.
- R4 Collaboration with the teacher and classmates throughout the learning process:
Attendance to theoretical, practical or tutoring sessions; teamwork; respect in the treatment; compliance with the rules of organization of the subject for the benefit of all.



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB2	Students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.				X
CB3	Students have the ability to gather and interpret relevant data (usually within their area of study) to make judgements that include reflection on relevant social, scientific or ethical issues.				X

GENERAL		Weighting			
		1	2	3	4
CG23	Students advise on the development, marketing, labelling, communication and marketing of food products in accordance with social needs, scientific knowledge and current legislation.				X
CG24	Students interpret reports and administrative files in relation to a food product and ingredients.			X	

SPECIFIC		Weighting			
		1	2	3	4
CE14	Students interpret and manage the databases and tables of food composition.			X	
CE22	To give scientific and technical advice on food products and their development. To evaluate compliance with such advice.				X
CE23	To participate in the business teams of social marketing, advertising and health claims.				X
CE26	Students know the nutrients, their functions and their metabolic use. To know the basis of nutritional balance and its regulation.				X



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R4	5,00%	Evaluation of the use of the practical classes in the classroom, of problems or computers, seminars and tutorials. Through attendance, and participation in the different activities proposed.
R1, R2, R3	60,00%	Written evaluation of the knowledge and skills obtained. The test may consist of a series of open-ended or multiple-choice questions on the theoretical content of the subject and/or practical exercises (problem solving).
R1, R2, R3, R4	35,00%	Evaluation of individual or group practices or activities, in which information related to each of the subjects must be sought and structured, and cases or problems resolved. This is done through a system of continuous evaluation throughout the course, which involves the delivery and / or exposure of work, whose objectives and content will be proposed by the teacher.

Observations

A minimum grade of 5 is needed in the final theory exam to be able to average. In the section "Assessment of the utilisation of practical classroom sessions, problem-solving activities, computer-based classes, seminars, and tutorials," and "Assessment of individual or group practicals or activities" written tests and/or activities assigned through the teaching platform will be conducted as instruments for continuous assessment.



MENTION OF DISTINCTION:

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Exposition of contents by the teacher, analysis of competencies, explanation and demonstration of capacities, skills and knowledge in the classroom. The blackboard, the computer and the cannon will be used to display texts, graphics, etc.
- M2 Resolution of practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All this with the support of the teacher. This aspect can be controlled through attendance and active participation in the practical sessions.
- M4 Monographic sessions throughout the course, oriented towards current aspects and applications of the subject.
- M5 Student study: individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. for discussion or delivery in electronic format.
- M6 Application and sharing of multidisciplinary knowledge This is the resolution of a problem that in its subsequent professional practice would require the application of skills acquired through the development of the modules and that would produce synergies in the assimilation of transversal and specific skills. Group work competences will be specifically evaluated.



- M7 Personalised attention and in small groups. Period of instruction and/or orientation carried out by a tutor with the aim of reviewing and discussing the materials and topics presented in the classes, seminars, readings, completion of assignments, etc. The attendance of the student and his/her level of gradual development in the knowledge of the subjects will be evaluated.
- M8 A set of tests, written or oral, used in the evaluation of the student.
- M9 Group preparation of readings, essays, problem solving, seminars, papers, reports, etc... for discussion or delivery.



IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons M1	R1, R2, R3, R4	38,00	1,52
Practice lessons M1, M2	R3, R4	10,00	0,40
Group work presentation M6	R3, R4	6,00	0,24
Seminar M4	R3	2,00	0,08
Office Hours M7	R1, R4	2,00	0,08
Evaluation M8	R1, R2, R3	2,00	0,08
TOTAL		60,00	2,40

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Autonomous work M5		70,00	2,80
Group work M9		20,00	0,80
TOTAL		90,00	3,60



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block

Contents

BLOCK 1: INTRODUCTION

· TOPIC 1: FUNCTIONAL FOOD

Introduction. Concepts and definitions. Causes of the appearance of functional foods. Food context of specific use for health. Functional Foods. Main types of functional foods

· TOPIC 2: LABELING AND HEALTH STATEMENTS

General labeling legislation. Nutritional and health claims. Consumer perception of food information

BLOCK 2: BIOACTIVE COMPOUNDS AND FUNCTIONAL INGREDIENTS.

· TOPIC 3: BIOACTIVE COMPOUNDS

Introduction. Polyunsaturated fatty acids. Omega 3. Omega6 CLA. Monounsaturated fatty acids. Plant sterols and phytosterols esters. Minority components of lipid nature. Fat-soluble vitamins. Tocopherols. Carotenoids. Other lipids. Prebiotics Probiotics Phenolic compounds. Functional ingredients from new sources



BLOCK III: FUNCTIONAL FOOD PRODUCTS

TOPIC 4: NOVEL FOOD The current food supply. Concepts. Authorization procedures. Categories of novel foods.

Catalog of new foods. Novel foods in the EU

TOPIC 5: TRANSGENIC FOOD Biotechnology and its application in the food chain. Development of transgenic products. GMO legislation. Fields of application. Risks and benefits. Consumer perception. Authorized food.

TOPIC 6: FOOD AND PROBIOTIC

INGREDIENTS Definitions. Probiotic foods. Selection and production methods of probiotics. Beneficial effects: intolerances, allergies, nutritional status, obesity, cholesterol, bile acids, infections, immune system, cancer, others.

Probiotics on the market

TOPIC 7: PREBIOTIC AND SYMBIOTIC FOOD AND INGREDIENTS Definition. Types. Properties. Obtaining methods. Physiological effects on health. Symbiotics. Future perspectives

TOPIC 8: NUTRACEUTICALS AND FOOD SUPPLEMENTS Definitions. Classification. Current legislation. Uses and target population. Food supplements

ITEM 9: ENRICHED AND FORTIFIED FOODS Definitions. Regulations. Labeling and advertising. Adding micronutrients. Adding other substances. Community registry. Fortified food



BLOCK IV: HEALTH, DIET AND ALTERNATIVE FORMS OF FOOD

·TOPIC 10: FALSE AND FAD DIETS

Importance of healthy eating. Intake evaluation: update of the clinical-dietary history. Comparison between balanced diet and healthy diet. Yo-yo effect. Classification of fad diets. Examples of fad diets

·TOPIC 11: HYPERPROTETIC DIETS

Nutritional goals. Indications. Metabolic stress. Loss of tissue. Malabsorption. Nutritional characteristics. Compliance difficulties. Cautions

·TOPIC 12: VEGETARIAN FOOD

Epidemiology. Definitions. Key nutrients. Vegetarian products. Recipe book

·TOPIC 13: FOOD MODULATION OF THE INTESTINAL MICROBIOTA

Importance and composition of the microbiota. Evolution with age. Health and microbiota. Diet patterns and microbiota.

·TOPIC 14: DIET RADIOPROTECTORS

Types of radiation. Interactions of radiation with living matter. Radioprotectors of the diet. Scope of application

·TOPIC 15: INTRODUCTION TO NUTRIGENETICS AND NUTRIGENOMICS.

Definitions. Methodologies. Nutrigenomics in diseases and health. Nutrigenomics and public health. Nutrigenomics and cancer. Future of nutrigenomics



Temporary organization of learning:

Block of content	Number of sessions	Hours
BLOCK I: INTRODUCTION	4,00	8,00
BLOCK 2: BIOACTIVE COMPOUNDS AND FUNCTIONAL INGREDIENTS.	4,00	8,00
BLOCK III: FUNCTIONAL FOOD PRODUCTS	13,00	26,00
BLOCK IV: HEALTH, DIET AND ALTERNATIVE FORMS OF FOOD	9,00	18,00



References

1. Álvarez Calatayud G, Marcos A, Margolles A. Probióticos, prebióticos y salud: evidencia científica. Publisher.: Ergon Creacion, S.A. 2016. Madrid. ISBN: 8416732094
2. Aranceta, J. Alimentos funcionales y salud en la etapa infantil y juvenil. Publisher. Panamericana. 2009. ISBN: 9788498352559
3. Bañares Vilella S. Los alimentos funcionales y las alegaciones alimentarias, una aproximación jurídica. Publisher.: Atelier, 2006. Barcelona. ISBN: 8496354857
4. Juárez M, Olano A, Morais F. Alimentos funcionales. Publisher.: Fundación Española para la Ciencia y la Tecnología; 2005. Madrid. ISBN: 84-689-4204-9.
5. Ortega RM, Cobo JM, Burnat A, López-Sobaler AM, Alimentos funcionales: probióticos. Publisher: Médica Panamericana; 2002. Madrid. ISBN: 8479037571
6. Rotimi E . Functional Foods and Nutraceuticals. Publisher.: Springer. 2012. ISBN: 1461434793.
7. Ríos Cañavate JL, Fitoterapia. Publisher: Universitat de Valencia. 3º Edicion. 2021. ISBN: 978-84-9134-850-4
8. Cilla Tatay A, Alegria Toran A, Información Alimentaria: Etiquetado de los alimentos. Publisher: Universitat de Valencia. 2014. ISBN: 978-84-370-9285-0
9. Serra Majem L, Aranceta Bartrina J. Guía de la alimentación funcional: Los probióticos en la alimentación humana. Publisher.: Elsevier Masson; 2008. Barcelona ISBN: 9788445819371
10. Silla Santos MH, Dieta mediterránea y alimentos funcionales: seguridad alimentaria. Universitat Politècnica de València (UPV), 2004, Valencia. ISBN: 84-9705-684-1
11. Soriano del Castillo JM, Nutrición básica humana. Publisher: Universitat de València; 2006. Valencia. ISBN: 8437065461
12. Soriano del Castillo JM, Montoro Pastor A, Consejo de Seguridad Nuclear (Spain), Publisher. Últimos avances en radioprotectores de origen natural. Madrid: Consejo de Seguridad Nuclear; 2013. 1 p.

·Links suggested

1. European Food Safety (EFSA):

https://europa.eu/european-union/about-eu/agencies/efsa_es

2. Spanish Agency for Food Safety and Nutrition (AECOSAN):

http://www.aecosan.mssi.gob.es/AECOSAN/web/home/aecosan_inicio.htm

3. Spanish Society of Comunitari Nutrition (SENC): <http://www.nutricioncomunitaria.org/es/>

4. European Commission. Food Safety: https://ec.europa.eu/food/overview_en



Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

Microsoft Teams

Kaltura



Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

Microsoft Teams

Kaltura

Explanation about the practical sessions:



2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: