Information about the subject

Degree: Bachelor of Science Degree in Human Nutrition and Dietetics

Faculty: Faculty of Medicine and Health Sciences

Code: 1310206 **Name:** Human Nutrition

Credits: 6,00 **ECTS Year:** 2 **Semester:** 1

Module: Nutritional, Dietetic and Health Sciences Module

Subject Matter: Fundamentals of Nutrition **Type:** Compulsory

Field of knowledge: Health Sciences

Department: Nutrition

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Nutritional, Dietetic and Health Sciences Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
Ethics and professional deontology	6,00	Social Morality. Deontological ethics	6,00	4/1
Dietetics	6,00	Dietetics	6,00	2/2
Fundamentals of Nutrition	18,00	Human Nutrition	6,00	2/1
		Nutrition in the Different Life Stages	6,00	3/1
		Parenteral and Hospital Nutrition	6,00	3/2
Pathology and Therapy	24,00	Dietotherapy	6,00	4/1
		Nutritional Pathology	6,00	3/2
		Pharmacology Applied to Nutrition	6,00	3/1
		Physiopathology	6,00	2/2
Documentation	6,00	Documentation and Research Techniques	6,00	4/1

Recommended knowledge

Has no established recommended prior knowledge

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 Understands and assimilates the concepts included in the course content.

R2 Shows ability to solve problems related to these contents using different resources.

R3 Shows ability to work in a laboratory performing correctly the basic operations and observing the corresponding security rules. As well as a correct understanding of the planning, development and purpose of the experience.

R4 Understands and adequate uses language, as well as correct writing and presentation of data.

R5 Collaborates with the teacher and colleagues 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

GENERAL		Weighting			
		1	2	3	4
CG07	Students are able to prepare reports and fill in records related to the professional intervention of the Dietician-Nutritionist.	x			
CG10	Elaborate, interpret and manage the tables and databases of food composition.				x
CG12	Students know the nutrients, their function in the organism, their bioavailability, the needs and recommendations, and the bases of the energetic and nutritional balance.				x
CG14	Students apply scientific knowledge of physiology, physiopathology, nutrition and feeding to the planning and dietary advice in individuals and collectivities, along the life cycle, both healthy and sick.	x			
CG15	Students design and carry out protocols for the evaluation of nutritional status, identifying nutritional risk factors.	x			
CG16	Students interpret the nutritional diagnosis, evaluate the nutritional aspects of a clinical history and carry out the dietary action plan.				x
CG17	Students know the structure of food services and hospital food and nutrition units, identifying and developing the functions of the Dietitian-Nutritionist within the multidisciplinary team.	x			
CG18	Students intervene in the organization, management and implementation of the different modalities of hospital food and nutritional support and outpatient dietetic-nutritional treatment.	x			

CG26	Students elaborate, control and cooperate in the planning of menus and diets adapted to the characteristics of the collective to which they are destined.				x

SPECIFIC		Weighting			
		1	2	3	4
CE06	Students know the bases and foundations of food and human nutrition.				x
CE14	Students interpret and manage the databases and tables of food composition.				x
CE26	Students know the nutrients, their functions and their metabolic use. To know the basis of nutritional balance and its regulation.				x
CE27	Students evaluate and calculate the nutritional requirements in health and disease situations at any stage of the life cycle.				x
CE28	Identify the basis of a healthy diet (sufficient, balanced, varied and adapted).				x
CE29	To participate in the design of total diet studies.				x
CE31	Students plan, carry out and interpret the evaluation of the nutritional status of subjects and/or groups, both healthy (in all physiological situations) and sick.	x			
CE33	To identify the dietary and nutritional problems of the patient, as well as the risk factors and inadequate practices.	x			
CE34	Elaborate and interpret a dietary history in healthy and sick subjects. Interpreting a medical history. Understand and use the terminology used in health sciences.	x			
CE37	Plan, implement and evaluate therapeutic diets for subjects and/or groups.	x			
CE38	Students know the hospital organization and the different phases of the food service.	x			
CE39	Participate in the multidisciplinary team of a Hospital Nutrition Unit.	x			
CE40	Know the different techniques and products of basic and advanced nutritional support.	x			
CE41	Develop and implement plans for the dietary and nutritional transition.	x			

CE42	Plan and carry out programs of dietetic-nutritional education in healthy and sick subjects	x		
CE46	Prescribe the specific treatment, corresponding to the scope of competence of the dietitian-nutritionist.	x		

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2	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.
R2, R4	65,00%	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).
R2, R3, R4	15,00%	Assessment of practical laboratory work, or laboratory culinary techniques workshop, through which the competencies acquired must be demonstrated and that they are capable of being used to solve the different situations and problems that arise in a laboratory; this assessment may be carried out by one of the following methods, or a combination of several of them: an individual written test, the individual or group performance of a laboratory experience, the submission of an individual or group report on the work carried out in the laboratory
R2, R4, R5	15,00%	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

In the written evaluation of the knowledge and skills obtained, an average grade of 5 is needed to be able to average with the other evaluation tools.Consisting of multiple choice and short

questions. During the course, the resolution of tasks and the preparation of diets will be continuously evaluated.
The criteria for the granting of honors registrations will be established in accordance with the regulations governing the evaluation and grading of the subject in force at the UCV, the mention of “Honors” may be awarded to students who have obtained a grade equal to or greater than 9.0. The number of “Honors” may not exceed five percent of the students enrolled in the group in the corresponding academic year, unless the number of students enrolled is less than 20, in which case a single “Honors” may be granted. honorary". Exceptionally, honors may be assigned between the different groups of the same subject globally. However, the total number of honors to be awarded will be the same as if they were assigned by group, but these may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for granting “Honors” will be carried out according to the criteria stipulated by the teacher responsible for the subject detailed in the “Observations” section of the evaluation system of the teaching guide.

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.

M3 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.

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, M3, M4	R1, R2	40,00	1,60
Practice lessons M2, M3	R2, R4, R5	12,00	0,48
Seminar M4	R1, R2, R3, R4	4,00	0,16
Office Hours M2	R1, R2	2,00	0,08
Evaluation M8	R1, R2	2,00	0,08
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Autonomous work M5	R1, R2, R3, R4, R5	80,00	3,20
Group work M9	R2, R4, R5	10,00	0,40
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
Introduction	Introduction to nutrition 1.Basic concepts of food, nutrition and nutrient. 2.Compartmentalization of nutrients: cell distribution 3.Compartmentalization of nutrients: distribution in the organs and homeostasis 4.Biological cycle of nutrients. 5.Function of the stomach (absorption, anatomy and histology) 6.Bowel function (absorption, anatomy, and histology) 7.Energy metabolism and energy transformation.
Carbohydrates	1.Structure and classification of carbohydrates. 2.Carbohydrate functions. 3.Digestion and absorption of carbohydrates. 4.Metabolism of glucose, galactose, fructose. 5.Endocrine regulation of carbohydrate metabolism.
Dietary fiber	1.Concept of dietary fiber. 2.Types of dietary fiber. 3.Fermentation of dietary fiber. 4.Physiological properties of dietary fiber. 5.Digestion of dietary fiber. 6.Functions of dietary fiber. 7.Effect of dietary fiber on chronic diseases 8.Negative effects of excessive fiber consumption 9.9. Recommended fiber intak

Proteins

1. Classification structure and function.
2. Classification and functions of amino acids.
3. Digestion and absorption.
4. Metabolism of proteins.
5. Amino acid metabolism.
6. Nitrogen excretion.
7. Metabolism of amino acids in different tissues
8. Hormonal regulation of protein metabolism.

Fats

1.Concept and classification of lipids
2.Lipid functions
3.Digestion and absorption of lipids.
4.Plasma lipoproteins, composition, classification and metabolism.
5.Metabolism of lipids.
6.Cholesterol. Synthesis and metabolism.
7.Essential fatty acids.
8.Ketone bodies.

Vitamins

1.Classification and types of vitamins.
2.Fat-soluble vitamins: absorption and metabolic utilization.
3.Water-soluble vitamins: metabolic absorption and utilization.
4.Effect on health of excess or deficiency of vitamins

Minerals

1.Type minerals and use.
2.Macrominerals.
3.Micro minerals.
4.Absorption and metabolism of minerals.
5.Effect on health of excess or deficiency of vitamins.

Regulation of hunger and satiety	1.Hunger, appetite, satiety. 2.Characteristics of the hunger and satiety regulation system. 3.Homeostasis hunger and satiety. 4.Components of the diet regulation system and nutritional homeostasis 5.Hypothalamic areas that participate in the regulation of eating behavior 6.Signs of hunger and satiety regulators.
Energy metabolism.	1.Components of energy expenditure. 2.Units of measurement and equivalences of energy. 3.Quantification of energy expenditure. 4.Calculation of energy needs. 5.Energy value of nutrients.
	1.Components of energy expenditure. 2.Units of measurement and equivalences of energy. 3.Quantification of energy expenditure. 4.Calculation of energy needs. 5.Energy value of nutrients.
Water	1.Concept of water 2.Functions of water 3.Water needs 4.Alteration of water composition (dehydration and hydration) 5.Clinical picture of dehydration 6.Symptoms of dehydration 7.Methods to evaluate the degree of dehydration 8.Water consumption 9.Regulation of fluid intake
Antinutrients	1.Alcohol 2. Species 3.Additives 4.Sweeteners 5.Pollutants (nitrates and nitrites)

Homework classes

1.Evaluation of the quality of the diet
2.Intake analysis (energy and macronutrients and micronutrients)
3.Calculation of energy intakes.
4.Calculation of energy and nutrient needs.
5.Management of diet management programs. Performing diets by grammage.

Seminars

1.Use of diet management program

Temporary organization of learning:

Block of content	Number of sessions	Hours
Introduction	2,00	4,00
Carbohydrates	3,00	6,00
Dietary fiber	2,00	4,00
Proteins	3,00	6,00
Fats	3,00	6,00
Vitamins	3,00	6,00
Minerals	3,00	6,00
Regulation of hunger and satiety	2,00	4,00
Energy metabolism.	1,00	2,00
Water	1,00	2,00
Antinutrients	1,00	2,00
Homework classes	5,00	10,00
Seminars	1,00	2,00

References

Basic Bibliography

1.Gil, A. Treatise on Nutrition. Volume I, II and III. Ed. Medical Action, 2005.
2. Krause. Nutrition and Diet Therapy. 8_ ed. Mexico: Inter-American, 1995.
3.Martínez, JA. Theoretical Practical Foundations of Nutrition and Dietetics, McGraw-Hill. 2000.
4.Soriano del Castillo JM. Basic Human Nutrition. University of Valencia (PUV) 2006.
5.Gil Hernández A, Martínez de Victoria. Nutrition and health. Pan American Edition. 2019.
6.Lozano. J.A. Nutrition is with Con-Ciencia. University of Murcia. Publication Services. 2011.
7.Servín Rodas MC. Basic and applied nutrition. National Autonomous University of Mexico. 2013.
8.Konrad Biesalsk H, Grimm P, Nowitzki-Grimm Susanne. Nutrition text and atlas. Elsevier 2016.
9.Vega L, Iñarritu MC. Fundamentals of Nutrition and dietetics. Pearson Custom Publishing. 2010.
10.Vanbergen and Wintle. The essential in metabolism and nutrition. Elsevier. 2019
11.Salas-Salvadó J, Bonada-Sanjaume A, Trallero R, Saló-Sola M. E, Burgos R. Nutrition and Clinical Dietetics. Elsevier Spain. 2014.
12. Gil Hernandez A, Martinez de Victoria. Nutrition and health. Pan American Edition 2019.
13. Martínez-Sanz JM, Marques I, Sospedra I, Menal S. Practical Manual for the elaboration and menus. Publications University of Valencia. 2019.
14. Ruiz MD, Artacho R Guide to dietary studies. Food photo album, Editorial Universidad de Granada. 2010.
15.Moreras O, Carbajal A, Food Composition Tables. Editorial. Pyramid.
16.Palafox Lopez, Lesdesma Solano, Manual of Formulas and tables of nutritional intervention McGraw. 2015.
17.Olivera G. Manual of clinical nutrition. Diaz de Santos. Third edition 2016
18.Román Luis, Bellido Guerrero, García Luna G. Olveira Fuste. Diet therapy, clinical nutrition and metabolism. Medical Classroom 2017.
19.International Physical Activity Questionnaire (IPAQ). Occupational Nursing Journal 2017;7:1(49-54)
20.Mª Zoraida Clavijo Chamorro Nutrition, dietetics and food. I.S.B.N.: 978-84-694-3861-9
21.Graciela Vitoria Ticona. Nutrition and micronutrients, Vitamins with immunological and antioxidant function. Titus.2020. ISBN
22.Dietary Guidelines for Americans 2010. US. Department of Agriculture U.S. Department of Health and Human Services www.dietaryguidelines.gov
23.Angel Gil Hernandez. Nutrition treatise. Medical books. Org 2021
24.Jordi Salas Saved. Nutrition and clinical dietetics. Elsevier 2019

Links and Web Resources of Interest

1. EFSA. Opinion of the scientific panel on dietetic products, nutrition and allergies on a request

from the Commission related to labeling reference intake values for n − 3 and n − 6 polyunsaturated fatty acids. EFSA J 2009; 1176: 1–11.
http://www.efsa.europa.eu/sites/default/files/scientific_output/files/main_documents/1176,pd
2. Innovadieta,
http://www.ucm.es/innovadieta/objetivos-nutricionales
https://www.ucm.es/innovadieta/guias-alimentarias
https://www.ucm.es/innovadieta/
3. EFSA. Dietary reference values and dietary guidelines
http://www.efsa.europa.eu/en/topics/topic/drv.htm
http://www.efsa.europa.eu/en/press/news/nda100326.htm
4. Ángeles Carbajal Azcona. Nutrition Department. Pharmacy faculty. Complutense University of Madrid https://www.ucm.es/nutricioncarbajal/
5. SENC. Nutritional objectives for the Spanish population. Consensus of the Spanish Society of Community Nutrition 2011. Rev Esp Nutr Com 2011; 17 (4): 178-199.
www.nutricioncomunitaria.org/es/noticia-documento/20
6. AESAN Spanish Agency for Food Safety and Nutrition:
www.aesan.msc.es
7. FAO - Food and Agriculture Organization of the United Nations: www.fao.org
8. WHO - World Health Organization: www.who.int.es

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:

[X] 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:

X	Microsoft Teams
	Kaltura

Explanation about the practical sessions:

The practical sessions in a situation of confinement due to a new alarm status will not be affected and will take place during their teaching hours via Microsoft Teams

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

ONSITE WORK

Regarding the Assessment Tools:

[X] 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: