



Information about the subject

Degree: Bachelor of Science Degree in Human Nutrition and Dietetics

Faculty: Faculty of Medicine and Health Sciences

Code: 1310307 **Name:** Parenteral and Hospital Nutrition

Credits: 6,00 **ECTS Year:** 3 **Semester:** 2

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

You have no 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 Shows ability to solve problems related to these contents using different resources.
- R2 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.
- R3 Understands and adequate uses language, as well as correct writing and presentation of data.
- R4 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, R3	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	55,00%	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	20,00%	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
R1, R2, R4	20,00%	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

An average mark of 5 is required in the written assessment of knowledge and skills to be able to average with the rest of the assessment tools. The written test consists of multiple-choice



questions, short questions and case studies.

During the course, the resolution of tasks, the preparation of diets, the resolution of clinical cases, the attendance to the workshops and the practices in the virtual hospital will be continuously evaluated.

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.

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	R1	33,00	1,32
Practice lessons M2, M3, M4, M5, M9	R1, R2, R3, R4	24,00	0,96
Seminar M3	R2, R4	4,00	0,16
Office Hours M2	R1	2,00	0,08
Evaluation M8, M9	R3	1,00	0,04
TOTAL		64,00	2,56

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Autonomous work M2, M5	R1, R3	76,00	3,04
Group work M1, M3, M7, M9	R1, R3, R4	10,00	0,40
TOTAL		86,00	3,44



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block

Contents





Malnutrition-malnutrition

- General concept of malnutrition
- General concept of malnutrition
- Definition of malnutrition
- Causes of malnutrition
- Consequences of malnutrition
- Types of malnutrition
- Malnutrition degree
- Malnutrition classification
- Malnutrition due to nutrient deficit

Hospital malnutrition

- Introduction
 - Importance of nutrition in the hospital setting (ICU)
- Hospital malnutrition concept
- Etiology and pathophysiology of hospital malnutrition
- Hospital malnutrition prevalence
- Hospital habits that favor malnutrition
- Causes of hospital malnutrition
- Consequences of hospital malnutrition
- Patients at risk of hospital malnutrition
- Types of malnutrition in the hospital setting
- Marasmus or calorie malnutrition
- Kwashiorkor or protein malnutrition
- Mixed malnutrition (Marasmus- Kwashiorkor)
- Deficiency states (Kwashiorkor-marasmatic-mixed)
- Malnutrition associated with inflammation
- Degree of malnutrition (mild, moderate and severe)

(depending on the coincidence of two or more altered markers).

- Clinical consequences of hospital malnutrition
- Physiological metabolic response after ingestion
- Physiological metabolic response to fasting.
- Endocrine-metabolic response to stress
- Stress concept
- Physiological changes to stress.
- Stress phases
- Metabolic stress response
- Endocrine stress response
- Systemic inflammatory response syndrome
- SIRS concept
- SIRS encouragement
- SIRS clinical manifestations and diagnostic criteria
- Inflammation physiology



- Inflammation mediators
- Phases of the systemic inflammatory response.

Nutritional care process

- Introduction
- Usefulness of assessing nutritional status
- Nutritional screening or screening
- Nutritional assessment
 - Clinical history
 - Dietary survey
 - Physical examination (signs and symptoms)
 - Drug-nutrient interaction
 - Anthropometric
 - Functionality
 - Nutritional prognosis indices
 - Biochemical evaluation.
 - Immunity assessment
 - Assessment of micronutrients
 - Compartmental valuation
- Diagnosis of malnutrition
- Coding of malnutrition



Nutritional therapy

Nutritional therapy

- Objectives of artificial nutritional therapy according to (ESPEN)
- Functions of professionals of the interdisciplinary team in nutritional therapy
- Types of artificial nutrition or nutritional therapy
- Indications of artificial nutritional therapy
- Decision algorithms for artificial nutritional support according to the clinical situation

1. Enteral nutrition

- Indications for enteral nutrition.
- Contraindications of enteral nutrition.
- Administration routes
 - Nasogastric
 - Nasoduodenal
 - Nasojejunal
 - Enterostomies
 - Gastrostomies
 - Endoscopic percutaneous gastrostomy (PEG)
 - jejunostomy
- Monitoring and control of the patient with enteral nutrition
- Enteral nutrition complications.
 - Mechanical
 - Metabolic
 - Gastrointestinal
- Corrective measures for complications
- Selection of enteral formulas
- Nutritional composition of enteral formulas
- Categorization of enteral formulas
- Classification of enteral diets

2. Parenteral nutrition

- Types of parenteral nutrition
- Advantages and disadvantages of total or central parenteral nutrition
- Advantages and disadvantages of peripheral parenteral nutrition
- Criteria for the indication of parenteral nutrition
- Indication of central parenteral nutrition
- Indication of peripheral parenteral nutrition
- Contraindications of parenteral nutrition
 - Mechanical
 - or metabolic



- Septic
- Nutrients in parenteral nutrition
- Administration route
 - Central route
 - Peripheral route
- Monitoring and control of patient with parenteral nutrition
- Preparation of total parenteral nutrition solutions
 - Commercialized parenteral nutrition
 - Nutrition prepared in hospital pharmacy service

3. Specific nutrients towards specialized clinical nutrition

Types of hospital diets

- Hospital diet protocol
- General diets
 - Basal diet
 - Liquid diet
 - Semi-liquid or semi-soft diet
 - Soft diet
 - Diets with modification of liquid consistency
 - Turmix or pureed diet
 - Easy to chew soft diet
- Therapeutic diets
 - Preoperative and post operative diets

Practical Module

- Calculation of diets in the hospital setting
 - Weight allowances
 - Exchange diets
- Choice and calculation of artificial nutritional support in the hospital setting
 - Oral nutrition
 - Enteral nutrition
- Parenteral nutrition

Seminars

- Specialized workshop on nutritional care in critical hospitalized patients
- Specialized workshop on nutritional care in institutionalized patients
- Resolution of hospitalized patients in the virtual hospital



Temporary organization of learning:

Block of content	Number of sessions	Hours
Malnutrition-malnutrition	5,00	10,00
Nutritional care process	4,00	8,00
Nutritional therapy	10,00	20,00
Types of hospital diets	2,00	4,00
Practical Module	7,00	14,00
Seminars	4,00	8,00



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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:

In the case of confinement due to a state of alarm, practice can be performed via Teams.



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: