DIETETICS AND APPLIED PHARMACOLOGY

Degree in Human Nutrition and Dietetics. Course (2026/27)

Code: 803986
Module: 4
Subject: Dietetics
Type of course: Compulsory
Grade: Second
Semester: consult calendar
Semester: Nutrition and Food Science/ Pharmacology and Toxicology
Credits: 12 ECTS

TEACHING STAFF

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SHORT DESCRIPTION

Dietetics is an applied science that interprets and uses the scientific principles of nutrition to design an appropriate diet (a balanced diet) for healthy or ill individuals, taking into account their physiological needs. It studies the organized and properly structured nutrition of individuals in different situations and life circumstances.

Likewise, understanding the basic principles of pharmacology and the main applications of medications is an essential component for nutritionists, especially when considering the possible interactions between drugs and nutrients or other substances.

COMPETENCES

They are those corresponding to the Module and Subject to which this subject belongs.

General competences

- C.G.1.1.
- C.G.1.2.
- C.G.1.3.
- C.G.1.4.
- C.G.2.1.
- C.G.2.2.
- C.G.2.3.
- C.G.3.3.
- C.G.4.1.
- C.G.4.2.
- C.G.4.3.
- C.G.4.4.
- C.G.4.5.
- C.G.4.6.
- C.G.4.7.
- C.G.5.4.
- C.G.6.1.
- C.G.7.2.
- C.G.8.1.

Competencias Específicas

- CE.M1.1.
- CE.M1.5.
- CE.M1.7.
- CE.M3.7.
- CE.M4.01.
- CE.M4.02.
- CE.M4.03.
- CE.M4.04.
- CE.M4.05.
- CE.M4.06.
- CE.M4.07.
- CE.M4.08.
- CE.M4.09.
- CE.M4.10.
- CE.M4.11.
- CE.M4.12.
- CE.M4.13.

- CE.M4.14.
- CE.M4.15.
- CE.M4.16.
- CE.M4.17.
- CE.M4.18.
- CE.M4.19.
- CE.M4.20.
- CE.M4.21.
- CE.M4.22.
- CE.M5.5.

OBJECTIVES

To acquire the necessary competencies to apply the principles of dietetics and basic pharmacology in order to design, evaluate, and provide guidance on healthy diets, taking into account nutritional needs at different stages and physiological conditions, as well as possible interactions between foods and medications.

SYLLABUS

DIETETICS

OBJECTIVES

- Identify the foundations of a healthy diet.
- Apply knowledge from food science and nutrition to dietetic practice.
- Become familiar with ingredients, portions, recipes, and culinary preparations.
- Provide students with the ability to assess and design healthy diets for individuals or groups at different stages of life and physiological conditions.
- Use standard tools for diet planning and evaluation.
- Provide the foundations for carrying out dietary interventions in nutritional consultations and offering dietary advice

DIETETICS PROGRAM

Topic 1. Introduction to dietetics: concepts and specific terminology.
Topic 2. Reference standards in diet design (recommended intakes, nutritional goals, diet quality indices).
Topic 3. Food-based dietary guidelines.
Topic 4. Diet and health. Healthy lifestyles.
Topic 5. Dietary patterns and health: Mediterranean, Nordic, Asian, etc.
Topic 6. Current diet in Spain. Evolution of eating habits in Spain over time**.**
Topic 7. Serving vs. portion. Evolution over time. Distortion and consequences.
Topic 8. Nutrition care process**.**
Topic 9. Diet design and planning for healthy individuals.
Topic 10. Diet design according to genetic profile**.**
Topic 11. Diet design and planning for groups**.**
Topic 12. Digital tools for diet design (software, applications, artificial intelligence).
Topic 13. Functional foods and ingredients, and dietetic products in diet design.
Topic 14. Dietary approach during pregnancy and lactation.
Topic 15. Dietary approach during the first year of life**.**
Topic 16. Dietary approach for preschool and school-aged children.
Topic 17. Dietary approach for adolescents.
Topic 18. Dietary approach in adulthood**.**
Topic 19. Dietary approach across different stages of a woman's life: menstruation, premenstrual syndrome, menopause**.**
Topic 20. Dietary approach for older adults**.**
Topic 21. Dietary approach to sports nutrition.
Topic 22. Dietary approach according to religion, culture, or lifestyle**.**
Topic 23. Dietary approach in vegan and vegetarian diets.
Topic 24. Dietary approach in the prevention of addictions to tobacco, alcohol, and other drugs**.**
Topic 25. Dietary approach for sedentary, immobile, or disabled individuals**.**
Topic 26. Dietary approach to astronaut nutrition**.**
Topic 27. Dietary approach to military nutrition**.**
Topic 28. Dietary approach for individuals with limitations in the weight/volume of food to be transported.
Topic 29. Practical guidelines for controlling excess body fat.
Topic 30. Eating outside the home: dietary approach**.**
Topic 31. Dietary approach in the prevention of the most prevalent diseases in the Spanish population**.**
Topic 32. The dietitian-nutritionist as a healthcare professional specialized in food, nutrition, and dietetics.

SEMINARS

1. Healthy Eating Index
2. Use of diet planning and analysis software
3. Design of Food-Based Dietary Guidelines (FBDGs)
4. Comparison of dietary patterns
5. Food consumption in Spain
6. Analysis of fad diets and other food-related myths

PRACTICE

1. Workshops on household measures and typical serving sizes. Serving vs. portion. Raw-to-cooked weight conversion.
2. Recipe reformulation and economic cost of nutrients.
3. Diet design and planning.
4. Design and critical evaluation of menus in collective catering.
5. Case study resolution.

PHARMACOLOGY PROGRAM

The main objective is for the trainee to acquire both General Competencies related to the knowledge required to practice their profession, as well as Transversal Competencies (Instrumental / Personal / Systemic) that enable professional development, and Specific Competencies related to the knowledge required to practice their profession.

It studies the relationships between individuals' nutritional status and the pharmacokinetic and pharmacodynamic aspects of medications.

The course is divided into four parts:

The first provides general knowledge about drug absorption, metabolism, and excretion, as well as their mechanisms of action.

The second identifies drug–nutrient and nutrient–drug interactions and their clinical consequences. It also covers the effect of drugs on the patient's nutritional status and the influence of nutritional status on various pharmacological treatments.

The third part focuses on the detailed study of adverse drug reactions.

The final part focuses on the study of the most frequently used drugs in the treatment of diseases that require the intervention of a nutritionist.

Pharmacokinetics and pharmacodynamics

- Introduction to pharmacology applied to the study of nutrition and dietetics.
- Pharmacokinetics I: absorption, distribution, routes of administration, pharmaceutical forms of drug administration, excipients.
- Pharmacokinetics II: metabolism and excretion.
- Pharmacodynamics: agonist drugs, antagonists, drug targets, cell signaling.

Influence of food, nutrients or supplements on the availability and effects of drugs

- Positive effects of drug interaction with food and nutrients.
- Variability of the pharmacological response (genetic and physiological factors).
- Drug-nutrient interaction in patients receiving enteral and parenteral nutrition.
- Influence of nutritional status on the effect and availability of drugs.
- Drug-nutrient interaction in transplant patients.
- Drug-nutrient interaction in patients with chronic infection

Adverse drug reactions (ADRs)

- Recognition and prevention of adverse reactions caused by drugs.
- Adverse drug reactions in the digestive system (taste changes, xerostomia, dysphagia, nausea and vomiting, diarrhea, constipation, paralytic ileus and intestinal pseudo-obstruction).
- Adverse reactions of diuretic drugs. Drugs that produce metabolic alterations (carbohydrates, lipids, uric acid, calcium).
- Hepatotoxicity and nephrotoxicity due to drugs.

Pharmacological bases in the treatment of diseases that require the intervention of the nutritionist

- Pharmacological management of digestive resections.
- Pharmacology of eating behavior disorders. Treatment of obesity. Drugs that affect intake.
- Metabolic disorders. Diabetes. Hypercholesterolemia.
- Sedation and analgesia in critically patients. Neurological patient.

SEMINARS

- Seminar on information retrieval in pharmacology. Use of Vademecum and the AEMPS website.
- Practical seminar on local anesthetic drugs.
- Seminar on oral anticoagulant interactions: virtual escape room.
- Seminar on research in nutrition.

EVALUATION CRITERIA

Exams will be held at the end of each of the two parts, as well as a final exam.

DIETARY EVALUATION

- The assimilation of theoretical knowledge will be assessed through written exams, which will account for **60%** of the final grade. In any case, a minimum score of 5 out of 10 must be achieved in this assessment.
- Seminars and activities related to seminar content (minimum grade of 5 out of 10 and attendance at all seminars) will account for **15%** of the final grade. Assessment will be carried out through an objective test.
- Practical skills will be assessed through objective tests. The grade obtained in this evaluation will account for **20%** of the final grade. To pass this part of the course, a minimum score of 5 out of 10 must be achieved and attendance at all practical sessions is required.
- At the instructor's discretion, different activities may be proposed for continuous assessment of learning, taking into account the student's attitude and participation in classes, tutorials, presentations, debate forums, etc. This will account for up to **5%** of the final grade, provided that a score higher than 5 out of 10 has been achieved in the other sections.

PHARMACOLOGY EVALUATION

The qualification will be obtained from a multiple choice written test in which the contents addressed in the theoretical classes and seminars will be evaluated. In this written test, the participation of the students will be proposed in the elaboration of questions that will be incorporated into the exam in a percentage not exceeding 5% of the total.

QUALIFICATION

The grading system will follow the provisions of RD.1125/2003, which in its article 5 indicates that "The results obtained by the student in each of the subjects of the study plan will be graded based on the following numerical scale of 0 to 10, with expression of a decimal, to which its corresponding qualitative qualification may be added":

0-4.9 Suspense (SS)
5.0-6.9 Approved (AP)
7.0-8.9 Notable (NT)
9.0-10 Outstanding (SB)

The mention of "Honors" will be awarded to students who have obtained a grade equal to or greater than 9.0. Their number may not exceed 5% of the enrolled students, unless said number is less than 20, in which case only one "Honors" may be awarded."

Attitude to follow before a voluntary or accidental infraction in the rules of conducting the exam.

The voluntary or accidental infraction of the norms of taking the exam prevents its assessment, so the offending student will take an oral exam of the subject to establish their knowledge of the subject. If intentionality in the deception is confirmed, it will be considered a very serious ethical breach, and the Services Inspectorate will be informed to take the disciplinary measures that it deems appropriate.

BASIC BIBLIOGRAPHY

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- Rang H, Dale M, Ritter J. Farmacología. 9ª Edición. Elsevier. 2020. ISBN: 9780702034718.
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- Principios de farmacología: Bases fisiopatológicas del tratamiento farmacológico. 4ª Edición. David E. Golan, Ehrin J. Armstrong, April W. Armstrong.2017. ISBN: 9788416781003.