

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

Code	33957
Name	Nutrition
Cycle	Grade
ECTS Credits	12.0
Academic year	2017 - 2018

Study (s)

Degree	Center	Acad. year	Period
1205 - Degree in Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	2	Annual
1211 - D.D. in Pharmacy-Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	4	Annual

Subject-matter

Degree	Subject-matter	Character
1205 - Degree in Human Nutrition and Dietetics	19 - Nutrition	Obligatory
1211 - D.D. in Pharmacy-Human Nutrition and Dietetics	1 - Asignaturas obligatorias del PDG Farmacia-Nutrición Humana y Dietética	Obligatory

Coordination

Name	Department
JUAN GARCIA, CRISTINA	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
MOLTO CORTES, JUAN CARLOS	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.

SUMMARY

WITHIN THE UNIVERSITY DEGREE CONTEXT: "Nutrition" is the only subject of the "Nutrition" matter. Nutrition is a part of the Module 4. "Science of nutrition, dietetics and health" of 55.5 ECTS.

CONTENTS ACCORDING TO THE UNIVERSITY DEGREE 2009



Human nutrition. Macro and micronutrients and other dietary components: role, needs and recommendations, sources and metabolic utilization. Energy and nutritional balance. And interaction between nutrients. Individual assessment of nutritional status, medical history, medical history, dietary, anthropometric, biochemical indices of prognosis, functional tests, rapid methods of nutritional screening and assessment of food intake.

OBJECTIVES

To Know the nutritional needs and how to set the recommended intakes, nutritional goals and dietary guidelines.

To Know the nutrient digestion, absorption, distribution and use by the body as well as their sources and the impact of impairments and/or excesses of intakes on the health.

Recognize nutrient interactions with themselves and with drugs.

To gain experience in methods of assessment of nutritional status of individuals and communities.

To know the different methods of assessment of food consumption at individual, household and national environment.

To explore the errors and myths of nutrition and feeding

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 recommended to have studied the matter biochemistry and physiology.

OUTCOMES

1205 - Degree in Human Nutrition and Dietetics

- Reconocer los elementos esenciales de la profesión del dietista-nutricionista, incluyendo los principios éticos, responsabilidades legales y el ejercicio de la profesión, aplicando el principio de justicia social a la práctica profesional y desarrollándola con respeto a las personas, sus hábitos, creencias y culturas, con perspectiva de género.
- Know, judge and know how to use and apply the sources of information related to nutrition, food, lifestyles and health.



- Recognise one's own limitations and the need to maintain and update professional competence, with particular emphasis on independent and lifelong learning of new facts, products and techniques in the field of nutrition and food, and on motivation for quality.
- Realizar la comunicación de manera efectiva, tanto de forma oral como escrita, con las personas, los profesionales de la salud o la industria y los medios de comunicación, sabiendo utilizar las tecnologías de la información y la comunicación especialmente las relacionadas con nutrición y hábitos de vida.
- Interpretar y manejar las tablas y bases de datos de composición de alimentos.
- Desarrollar la profesión con respeto a otros profesionales de la salud, adquiriendo habilidades para trabajar en equipo.
- 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.
- Diseñar y llevar a cabo protocolos de evaluación del estado nutricional, identificando los factores de riesgo nutricional.
- Interpretar el diagnóstico nutricional, evaluar los aspectos nutricionales de una historia clínica y realizar el plan de actuación dietética.
- Conocer los nutrientes, su función en el organismo, su biodisponibilidad, las necesidades y recomendaciones, y las bases del equilibrio energético y nutricional.
- Conocer y comprender la terminología y los procesos relacionados con la nutrición, la alimentación y su aplicación práctica.
- Conocer las bases del equilibrio energético y nutricional.
- Conocer los macronutrientes, su función en el organismo, fuentes alimentarias, valor energético, biodisponibilidad, necesidades y recomendaciones, así como la repercusión de la deficiencia y exceso sobre la salud.
- Conocer los micronutrientes, su función en el organismo, fuentes alimentarias, biodisponibilidad, necesidades y recomendaciones, así como la repercusión de la deficiencia y exceso sobre la salud.
- Know about other components of foods with a nutritional impact, delving into their function, bioavailability and food sources.
- Know the anamnesis and clinical and dietary history as a prelude to the individual nutritional assessment.

LEARNING OUTCOMES

Studying this course, students should acquire the following skills and abilities:

Strength in basic nutritional knowledge

Ability to pose and solve basic nutritional problems

Knowledge of the possibilities that the Internet provides on nutritional knowledge and ability to discriminate the scientific reliability of the sources of information



DESCRIPTION OF CONTENTS

1. INTRODUCTION

Item 1. Food and Nutrition: Concepts. Related matters. Historical and future prospects. Nutrition areas. Sources of information and literature. Food and nutrients: Concepts and types. Food groups. Bioavailability of nutrients.

2. REQUIREMENTS RECOMMENDATIONS DIETARY NUTRITION GOALS AND GUIDELINES

Item 2. ENERGY NEEDS. Metabolism and energy expenditure. Components of energy expenditure: basal energy expenditure, physical activity energy expenditure, thermogenesis and diet-induced thermogenesis by stress. Quantifying energy expenditure, and calorimetric calorimetric methods.

Item 3. NEEDS AND RECOMMENDATIONS. Concepts. Recommended Dietary Intakes and reference. Classification and components.

Item 4. DIETARY NUTRITION GOALS AND GUIDES. National and international nutrition goals. Dietary Guidelines: characteristics, a model for development, implementation and evaluation. Food guides in Spain and Latin America.

3. ENERGY AND NUTRIENTS

ENERGY AND NUTRIENTS

Item 5. Energy value of nutrients. Determination of the energy value of food.

Item 6. Lipids: Classification. Use by the body. Saturated and unsaturated fatty acids. Unsaponifiable components. Needs and recommendations. Dietary sources. Related pathology

Item 7. Protein-use by the body. Essential amino acids. Evaluation of the nutritional quality of proteins. Recommendations. Dietary sources. Plastic needs. Protein needs: estimate. Related pathology.

Item 8. Carbohydrates: Classification. Uses: Digestion, absorption, transport, storage, metabolism and its regulation. Functions. Needs and recommendations. Dietary sources. Related pathology

Item 9. Water and electrolytes: Functions, requirements, recommendations and sources. Related pathology

Item 10. Vitamins: Concept and classification. Water-soluble vitamins: Vitamin C. B vitamins Functions. Needs and recommendations. Dietary sources. Related pathology

Item 11. Soluble vitamins. Functions. Needs and recommendations. Dietary sources. Related pathology

Item 12. Minerals. General. Major elements. Functions. Needs and recommendations. Dietary sources. Related pathology

Item 13. Trace elements. Functions. Needs and recommendations. Dietary sources. Related pathology



4. OTHER FOOD COMPONENTS

OTHER FOOD COMPONENTS

Item 14. Dietary fiber: concept. Components and classification. Biological functions. Needs and recommendations. Dietary sources. Related pathology

Item 15. Biologically active food. Concept and classification. Sources. Biological effects.

Item 16. Nucleic acids and nucleotides. Concept and classification. Sources. Use. Nutritional considerations.

Item 17. Ethyl alcohol. Absorption, metabolism and effects. Recommendations. Sources and food and nutritional impact.

5. INTERACTION WITH NUTRIENTS

Item 18. Energy-nutrient interactions and nutrient-nutrient. Concept. Interaction of energy. Interaction between and minerals. Interaction of fiber. Interaction between and vitamins.

6. ASSESSMENT OF NUTRITIONAL STATUS

Item 19. Nutritional assessment. Evolution of nutritional status. Indicators. Anamnesis. Medical and social history.

Item 20. Anthropometric assessment. Concepts. Body compartments. Fat and lean mass. Body water. Most common anthropometric parameters.

Item 21. No anthropometric assessment. Methods based on electrical conductance, isotopic and densitometry.

Item 22. Clinical evaluation. Clinical signs common in nutritional deficiency and excess.

Item 23. Biochemical evaluation. Generic and specific methods. Limitations.

Item 24. Hematologic evaluation. RBC parameters. Red cell indices. Determination of platelets. Leukocyte parameters.

Item 25. Immunologic evaluation. Total lymphocyte count. Percentage and number of lymphocyte subpopulations. Delayed cellular hypersensitivity reactions. Serum immunoglobulins.

Item 26. Other methods. Prognostic indexes. Functional tests. Screening and identification of patients at nutritional risk.

7. ASSESSMENT OF FOOD CONSUMPTION

Item 27. Food surveys. Concept and classification. Evaluation of the national food consumption. Food balance sheets: development, applications and advantages and disadvantages.

Item 28. Evaluation of family food consumption. Concept, classification and methodology. HBS: development, applications and advantages and disadvantages. Household consumption surveys: development, applications and advantages and disadvantages.

Item 29. Assessing individual food consumption. Prospective and retrospective methods.

Item 30. Methodology for selecting food surveys. Selection criteria. Administration forms. Sources of error.

**8. MYTHS AND CONTROVERSIALS IN FOOD AND NUTRITION**

Unit 31. False vitamins. Oxidants and antioxidants. Inadequate dietary habits. Fasting.

9. Laboratory experiments

- 1.- Resolution of practical issues across the network. Specific nutrition pages.
- 2.- Changes in the use of sugars (diabetes).
 - 2.1.- Making a curve of glucose tolerance.
 - 2.2.- Recognition of glucose in urine (glucosuria).
 - 2.3.- Recognition of ketones in the urine.
- 3.- Changes in the use of carbohydrates (carbohydrate intolerance).
 - 3.1.- Investigation of lactose intolerance.
 - 3.2.- Investigation of galactose intolerance.
- 4.- Investigation of adaptive metabolic changes.
 - 4.1.- Determination of total plasma proteins.
 - 4.2.- Determination of plasma free fatty acids.
 - 4.3.- Determination of liver glycogen.
- 5.- Biochemical evaluation of nutritional status: State protein
 - 5.1.- Determination of creatinine.
- 6.- Assessment of nutritional status: anthropometry.
- 7.- Nutrient Digestion: Enzyme activity of salivary amylase.
- 8.- Protein Metabolism: Determination of urea in serum and urine.
- 9.- Detection of deficiencies of vitamin C.
- 10.- Regulation of electrolyte and mineral nutrient balance:
 - 10.1.- Determination of volume, density and urinary pH.
 - 10.2.- Determination of chlorides in urine.
- 11.- Study of the diet.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	76,00	100
Laboratory practices	30,00	100
Seminars	4,00	100
Tutorials	4,00	100
Development of group work	20,00	0
Preparing lectures	95,00	0
Preparation of practical classes and problem	30,00	0
Resolution of case studies	20,00	0
Resolution of online questionnaires	15,00	0
TOTAL	294,00	



TEACHING METHODOLOGY

The subject development is done through computer presentations and timely board and transparencies. Approach problems solved and unsolved. Approach of case studies of nutritional consultation. Literature search of books available in library. at the beginning of each topic outline or summary will be available for students

The teaching techniques include:

Theoretical sessions including practical cases

Hands-on labs

Hands-on computer

Preparation, presentation and discussion of current events (seminars coordinated)

specialized Tutorials

Media: Video scientists and current affairs

Other (specify): Attendance at conferences and seminars taught by specialized professionals.

Assistance to specific workshops organized by various organizations

EVALUATION

Practical work, seminars and tutorials is compulsory to pass the subject.

Practical value of the part (15%).

Value of the theoretical part (70%), First partial knockout of theoretical material (35%) valid until the first call exam, Second part (35%) only for the first call exam or a single final examination of the theoretical (70%).

Value Seminars (10%)

Tutorials value (5%)

It requires a minimum grade of 4 / 10 in each of the teaching activities assessed to compensate the note from the others.

The course is overcome when acquiring specific skills of the matter (minimum overall score 5 / 10).

Coordinated Seminar is not required for Double degree students, in which case the overall mark will be prorated without considering the 10% of seminar.



REFERENCES

Basic

- Cervera P., Clapés J., Rigolfas R., Alimentación y Dietoterapia. 3ª ed. Mc Graw-Hill-Interamericana (1999).
 - Gil A. Tratado de Nutrición. Ed. Acción Médica. Madrid (2005).
 - Kuklinski C. Nutrición y Bromatología. Ed Omega Barcelona (2003)
 - Mahan L.K., Scott-Stump S., Nutrición y Dietoterapia de Krause. 10ª edición. Mc Graw-Hill-Interamericana. México (2001).
 - Martínez J.A., Fundamentos teórico-prácticos de Nutrición y Dietética. Mc Graw-Hill- Interamericana México (1998).
 - Mataix J. (ed), Nutrición y alimentación humana: I. Nutrientes y alimentos. II. Situaciones fisiológicas y patológicas. Ergón. Majadahonda. (2002).
 - Mataix J., Mañas M., Tablas de composición de alimentos españoles. 3ª ed. Universidad de Granada (1998).
 - Salas-Salvadó J., Bonada A., Trallero R., Saló E., Nutrición y Dietética Clínica. Masson. Barcelona (2000).
 - Serra L., Aranceta J. Nutrición y Salud Pública. 2ª Ed. Masson. Barcelona. (2006).
 - Soriano J.M. Nutrición básica humana. Servei de Publicacions de la Universitat de València. Valencia. (2006).

Additional

- Agencia Española de Seguridad Alimentaria (AESA) www.aesa.msc.es
Agència Catalana de Seguretat Alimentària (ACSA) www.gencat.net/salut/acsa
Asociación Española de Diplomados de Enfermería de Nutrición y Dietética (ADENYD) <http://www.adenyd.es/adenyd/>
Asociación Española de Dietistas y Nutricionistas (AEDN) www.aedn.es
Asociación Española de Doctores y Licenciados en Ciencia y Tecnología de los Alimentos (ALCYTA) www.alcyta.com

Composición de alimentos:

www.ars.usda.gov/Aboutus/docs.htm?docid=6300

www.nal.usda.gov/fnic/foodcomp/Data/SR18/sr18.html

www.cropcomposition.org/

Federación Española de Sociedades de Nutrición, Alimentación y Dietética (FESNAD) www.fesnad.org

National Library of Medicine. www.nlm.nih.gov/pubmed

Sociedad Española de Dietética y Ciencias de la Alimentación (SEDCA) www.nutricion.org

Sociedad Española de Endocrinología y Nutrición (SEEN) www.seen.es

Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica (SEGHNP) www.gastroinf.com



Sociedad Española de Nutrición (SEN)

www.sennutricion.org

Sociedad Española de Nutrición Comunitaria (SENC)

www.nutricioncomunitaria.com

Sociedad Española de Nutrición Parenteral y Enteral (SENPE)

www.senpe.com

Web legislación española:

www.noticias.juridicas.com

