Universitat Autònoma de Barcelona

2019/2020

Nutrition and Dietetics

Code: 101881
ECTS Credits: 6

Degree	Type	Year	Semester
2501230 Biomedical Sciences	OT	4	0

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Teachers

Enrique Domingo Ribas
Vicente Martínez Perea
Raquel Moral Cabrera

Prerequisites

It is very recommended the student has acquired sufficient knowledge and competences about biochemistry, physiology and pathophysiology.

Objectives and Contextualisation

The "Nutrition and Dietetics" is an optional subject that is programmed during the second semester of the fourth year of the Bachelor's Degree in Biomedical Sciences. It develops the basic contents of human nutrition, nutrition in special physiological situations, nutrition in the field of public health, as well as some of the main interactions between nutrition, health and pathology. It also develops nutritional guidelines for the development of diets in the context of healthy eating.
The general objective of the subject consists in the acquisition of knowledge, skills and attitudes in the different fields of nutrition and dietetics.

Competences

- Contribute to public discussions on cultural matters.
- Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
- Develop independent learning habits and motivation to continue training at postgraduate level.
- Develop independent learning strategies.
- Develop scientific knowledge, critical reasoning and creativity.
- Display knowledge of the concepts and language of biomedical sciences in order to follow biomedical literature correctly.
- Display theoretical and practical knowledge of the major molecular and cellular bases of human and animal pathologies.

- Identify and understand the advances and challenges of research.
- Respect diversity in ideas, people and situations.
- Show respect for the ethical and legal aspects of research and professional activities.
- Work as part of a group with members of other professions, understanding their viewpoint and establishing a constructive collaboration.

Learning Outcomes

1. Contribute to public discussions on cultural matters.
2. Correctly use the terminology of medicine and its text and reference books
3. Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
4. Develop independent learning habits and motivation to continue training at postgraduate level.
5. Develop independent learning strategies.
6. Develop scientific knowledge, critical reasoning and creativity.
7. Identify and understand the advances and challenges of research.
8. Identify the principal pathologies that become more prevalent with ageing.
9. Metabolic diseases. Describe the etiopathogenia, the physiopathology and the basic characteristics of the principal syndromes and diseases of metabolism and the nutritional state, including diabetes.
10. Respect diversity in ideas, people and situations.
11. Show respect for the ethical and legal aspects of research and professional activities.
12. Understand the molecular and cellular bases of cancer, the causes of its development and the bases for its treatment.
13. Work as part of a group with members of other professions, understanding their viewpoint and establishing a constructive collaboration.

Content

1. Physiological and metabolic bases of nutrition

1.1. The digestive process

1.2. The intermediate metabolism

1.3. Regulation of food intake

2. Nutrients: concepts and classification

2.1. Water

2.2. Carbohydrates

2.3. Lipids

2.4. Proteins

2.5. Vitamins

2.6. Minerals

2.7. Conditionally essential nutrients

3. Energy.

3.1. Components of energy expenditure

3.2. Factors that influence energy expenditure

3.3. Estimation of energy needs

3.4. Energy obtained from food

4. Recommended nutrients and energy intakes

4.1. Dietary Reference Intakes (IDR) and other basic concepts

4.2. Nutritional goals vs. IDR

5. Foods.

5.1. Components: nature, classification and functions

5.2. Nutritional classification of foods

5.3. Meats, fish and eggs

5.4. Dairy products and derivatives

5.5. Oils and fats

5.6. Cereals and derivatives

5.7. Tubercles

5.8. Beans

5.9. Dried fruits

5.10. Fruits and vegetables

5.11. Beverages and complementary foods

6. Food guidance and food composition tables (TCAs)

6.1. Food guides: concept, utility and type

6.2. Ration concept

6.2. TCA: features and use

7. Balanced feeding: Guidelines for the preparation of diets

7.1. Characteristics of healthy eating

7.2. Dietary council

7.3. Therapeutic diets

8. New trends in human nutrition

8.1. Genetically modified foods

8.2. Functional foods

8.3. Nutrition statements and healthy properties of food

8.4. Dietary supplements

9. Nutrition in special physiological situations

9.1. Gestation and lactation

9.2. Early childhood, second childhood and adolescence

9.3. Advanced age

9.4. Physical activist and sport

10. Vegetarianism and alternative diets

11. Nutrition and Public Health

11.1. Evaluation of nutritional status

11.2. Nutritional Epidemiology

11.3. Food surveys

11.4. Dietary intervention

11.5. Food and culture

12. Food habits and health: Interactions

12.1. Food and cancer

12.2. Cardiovascular diseases

12.3. Diet and obesity

12.4. Diabetes mellitus and metabolic syndrome

12.5. Behavioral disorders

12.6. Anemia: iron deficiency, vitamin B12 deficiency and folate deficiency

12.8. Nutrition and immunity

12.9. Allergies and food intolerances

13. Interactions between nutrients and drugs

14. Introduction to nutrigenomics, nutrigenetics and nutepigenetics

Methodology

Theory classes:

Systematic explanation of the subject topics, giving relevance to the most important concepts. The student acquires the basic scientific knowledge of the subject in theory classes, which will be complemented by self-study of the themes of the subject program.

Laboratory practices:

Practical sessions for the observation and performance of procedures, the practical learning of physiological techniques and their medical application. Group work and active self-learning are promoted.

Case-based work:

Work on cases and problems of relevance for learning the subject. The knowledge acquired in theory classes, practices and personal study is applied to the resolution of practical cases presented using the moodle application.

Tutorial teaching:

Availability of tutorials for helping in the autonomous study of physiological concepts and application for the resolution of cases.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Case resolution work (PAUL)	8	0.32	11, 12, 1, 6, 5, 4, 3, 7, 8, 9, 10, 13, 2
Laboratory Practices (PLAB)	3	0.12	11, 1, 6, 5, 4, 3, 7, 10, 13, 2
Theory (TE)	34	1.36	12, 6, 4, 3, 7, 8, 9, 2
Type: Supervised			
Support tutorials for the understanding of the subject and development of the learning objectives.	15	0.6	11, 12, 6, 5, 4, 3, 7, 8, 9, 2
Type: Autonomous			
Personal study, preparation of schemes, conceptual maps and summaries. Preparation of case-based work and practices.	83	3.32	11, 12, 6, 5, 4, 3, 7, 8, 9, 2

Assessment

The acquisition of the competences of the subject will be evaluated by:

- Continuous evaluation:

Throughout the course, the continuous evaluation will consist of:

1) Written evaluations through objective tests developed in scheduled exam sessions (partial exams). They evaluate the comprehension and knowledge of the concepts developed in the different sections of the syllabus and that the student must have acquired both in the theoretical and practical classes, as well as in their own self-learning (75% of the overall final grade).

The exams will contain multiple choice questions and / or short written questions.

Two of these partial exams will be done:

- Block 1: corresponding to the basic aspects of nutrition. Its mark will be 40% of the overall grade in this section.

- Block 2: corresponding to nutrition in special situations, and nutrition and health. It includes the second part of the syllabus (from topic 9). Its mark will be 60% of the overall grade in this section.

In order to pass the subject it is necessary to obtain a minimum of 5.0 in each of these blocks as well as in the average grade between them.

2) Written evaluations through objective tests developed during the laboratory and the case-based study practices (25% of the overall final grade).

The tests will consist of multiple choice questions and / or short written questions and / or presentation of works and results.

In order to pass the subject it is necessary to obtain a minimum of 5.0 in the final grade (75% written tests (1) + 25% cases-based study and practices (2)).

- Final exam:

A final examination for recovery will be carried out, in which the student will have to attend only if he has not passed the continuous evaluation of the same academic year. This final exam will also be done in the two blocks above mentioned, and the same conditions will apply in terms of percentages and minimumgrades as the continuous evaluation.

To pass the subject through the final exam, it is necessary to obtain a minimum of 5.0 in the final grade.

According to the general regulationsof the UAB, to participate in the final examination, the student must have been previously evaluated in a set of activities whose weight equals to a minimum of two thirds of the total qualification of the subject.

It will be considered as "not asseassable" the student who does not take the scheduled exam sessions.

For each one of the exams of the subject a period of reviewing will be established properly publicity.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Written evaluation through objective tests: multiple choice questions	75%	4	0.16	11, 12, 6, 5, 4, 7, 8, 9, 2
Written evaluation through objective tests: multiple choice questions and / or restricted questions essay tests and / or presentation of works and results	25%	3	0.12	11, 12, 1, 6, 5, 4, 3, 7, 8, 9, 10, 13, 2

Bibliography

Specific bibliography:

- Biesalski HK, Grimm P, Nowitzki-Grimm S. Nutrición. Texto y Atlas de Nutrición, 6ª ed. Elsevier, 2016.

- Escott-Stump S. Nutrición, diagnóstico y tratamiento, 8ª ed. LIPPINCOTT WILLIAMS AND WILKINS. WOLTERS KLUWER HEALTH, 2016.

- Gil A. Tratado de Nutrición, 3ª ed. Editorial Médica Panamericana, 2017.

- Mahan LK, Raymond JL. Krauses's Food and the Nutrition Care Process. 14 ed. Elsevier, 2017.

- Mataix J. Nutrición y Alimentación Humana, 2ª ed. Ergón 2009.

- Organización Médica Colegial de España y Ministerio de Sanidad y Consumo. Guía de Buena Práctica Clínica en el Consejo Dietético. Editorial International Marketing & Communication, SA. Madrid, 2005.

- Salas-Salvadó J. Nutrición y Dietética Clínica, 3ª ed. Elsevier, 2014.

- Sociedad Española de Nutrición Comunitaria. Guia de la alimentación saludable. SENC, Madrid 2004.

General bibliography:

- Hall JE. Guyton Textbook of Medical Physiology. 13th ed. Elsevier, 2015.

- Tresguerres JAF. Fisiología Humana, 4ª ed. MCGraw Hill-Interamericana, 2010.

Internet resources:

- Agencia Española de Seguridad Alimentaria y Nutrición: http://www.aesan.msc.es/

- European Comission: Agriculture and rural development: http://ec.europa.eu/news/agriculture/index_es.htm

- World Health Organization (WHO): http://www.who.int/es/

- EUFIC - The European Food Information Council: https://www.eufic.org/en

- EFSA - European Food Safety Agency: http://www.efsa.europa.eu/