

29231 - Molecular Biology and Human Nutrition

Información del Plan Docente

Academic Year	2016/17
Academic center	229 - Facultad de Ciencias de la Salud y del Deporte
Degree	441 - Degree in Human Nutrition and Dietetics
ECTS	6.0
Course	4
Period	Half-yearly
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The aim of this course is to introduce the student to this new field of Genomic Nutrition, at the same time the student achieves skills and knowledge that will help to understand the present situation and the future challenges of Human Nutrition.

5.2.Learning activities

The course includes a variety of activities, like lectures, seminars and laboratory and computer sessions.

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Lectures cover the basics of the subject. The primary emphasis is on transmitting a body of knowledge or information and explaining ideas or principle. Students may be expected to participate in classroom activities (4.4 ECTS).

Other activities (1.6 ECTS):

a) Laboratory sessions: Experimental tasks carried out in small groups, under the supervision of the professor. The purpose is the application of methods and principles related to the subject.

b) Seminars: Conducted to give students an opportunity to make a presentation on a researched topic to the rest of the class, under the direction of the professor.

5.3.Program

Lectures

Lesson 1. Introduction to nutritional genomics

Lesson 2. Gene and DNA structure

Lesson 3. Gene expression and regulation

Lesson 4. Gene inheritance and transmission. Genetic variability

Lesson 5. Genes and disease

Lesson 6. Molecular methods used in nutritional genomics

Lesson 7. Nutrients and epigenetics

Lesson 8. Microbiome, diet and health

Lesson 9. Gene-environment interactions. Genetic variability and nutrition

Lesson 10. Personalized nutrition

Lesson 11. Ethical and legal issues surrounding nutrigenomics

Lesson 12. Nutrients and gene expression

Lesson 13. Nutrigenomics and nutrigenetics in ageing and calorie restriction

Lesson 14. Nutrigenomics and nutrigenetics in cardiovascular disease

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Lesson 15. Nutrigenomics and nutrigenetics in obesity

Lesson 16. Nutrigenomics and nutrigenetics in cancer

Laboratory sessions

1. DNA extraction
2. Gene amplification by polymerase chain reaction (PCR)
3. Detection of polymorphisms of human mtDNA by gel electrophoresis
4. Bioinformatics

5.4.Planning and scheduling

The schedule for 2016-2017 course will be published by the Facultad de Ciencias de la Salud y del Deporte.

5.5.Bibliography and recommended resources