

## 29231 - Molecular Biology and Human Nutrition

### Syllabus Information

**Academic Year:** 2020/21

**Subject:** 29231 - Molecular Biology and Human Nutrition

**Faculty / School:** 229 - Facultad de Ciencias de la Salud y del Deporte

**Degree:** 441 - Degree in Human Nutrition and Dietetics

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject Type:** Optional

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

#### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

### 4.Methodology, learning tasks, syllabus and resources

#### 4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, seminars, laboratory sessions and computer sessions.

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.

#### 4.2.Learning tasks

This course is organized as follows:

- **Lectures** (4.4 ECTS). Lectures cover the basics of the course. 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 \* Lectures will be taught online, by teachers and students synchronously, through technologies that allow interaction (Google Meet).
- **Practice sessions** (1.6 ECTS):
  - 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 course.
  - 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.

### 4.3.Syllabus

This course will address the following topics:

#### Lectures

- Unit 1. Introduction to nutritional genomics
- Unit 2. Gene and DNA structure
- Unit 3. Gene expression and regulation
- Unit 4. Gene inheritance and transmission. Genetic variability
- Unit 5. Genes and disease
- Unit 6. Molecular methods used in nutritional genomics
- Unit 7. Nutrients and epigenetics
- Unit 8. Microbiome, diet and health
- Unit 9. Genetic variability and nutrition
- Unit 10. Personalized nutrition
- Unit 11. Ethical and legal issues surrounding nutrigenomics
- Unit 12. Nutrients and gene expression
- Unit 13. Nutrigenomics and nutrigenetics in ageing and calorie restriction
- Unit 14. Nutrigenomics and nutrigenetics in cardiovascular disease
- Unit 15. Nutrigenomics and nutrigenetics in obesity
- Unit 16. Nutrigenomics and nutrigenetics in cancer

#### Laboratory sessions

- 1. DNA extraction
- 2. Gene amplification by polymerase chain reaction (PCR)
- 3. Analysis by gel electrophoresis
- 4. Bioinformatics

### 4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of Health and Sport Sciences website and Moodle.

Timetable of on-site sessions and exams: (<https://fccsyd.unizar.es/academico/horarios-y-calendarios>)

### 4.5.Bibliography and recommended resources

[http://biblos.unizar.es/br/br\\_citas.php?codigo=29231&year=2020](http://biblos.unizar.es/br/br_citas.php?codigo=29231&year=2020)