

## 29233 - Functional Foods

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 29233 - Functional Foods

**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

### 2. Learning goals

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

### 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, practice sessions, autonomous work and study and exams.

#### 4.2. Learning tasks

This course is organized as follows:

- **Lectures** (25 hours). Sessions dedicated to expose and explain the basic and necessary content for the understanding of the course.
- **Practice sessions** (35 hours)
  - Problem solving and case studies (15 hours). Students must solve several problems and issues with the help of audio-visual material and the teacher. Group work is encouraged. Some of these activities may be complemented by autonomous work and study.
  - Practice sessions in laboratory (20 hours).
- **Autonomous work and study** (85 hours). Study of related lectures, seminars and study of exams, data collection and analysis, information retrieval and further content reading.
- **Exams** (5 hours). Different tests to verify and check the acquisition of both theoretical and practical knowledge and skills acquisition will be made.

#### 4.3. Syllabus

This course will address the following topics:

- **Unit 1.** Introduction and Overview. Basic concepts, objectives and target functions of the functional components. Organic foods.

- General introduction. Concepts and definitions: Healthy eating, functional food, food design, pharma-food, nutraceutical, phytochemicals.
- New foods and functional foods. Objectives of the functional foods' science. Target functions of nutrients and food components with functional properties.
- Organic foods (organic) "versus" transgenic or genetically modified foods.
- **Unit 2.** Functional foods: Health claims, production strategies, regulation, labeling and advertising.
  - Health claims on functional products. History, background, and current market demand for new foods.
  - Procedures for obtaining functional foods. Production and development' strategies of functional foods.
  - Regulation and national and international regulations on functional foods and nutraceuticals.
  - Criteria for use of health claims. Labelling's adjustment to the new regulation.
- **Unit 3.** Physiological effects of major functional foods and potential of these functional ingredients.
  - Potential functional ingredients. Classification. Effectiveness and validity of "biomarkers" and "functional" value added food. Functional ingredients derived from traditional foods.
  - Beneficial compounds from fruits, vegetables and legumes. Amaranth, quinoa, soy. Chemopreventive main inducers:
    - cruciferous and allium.
  - Ingredients and biological effects of exotic foods of America: Tropical fruit.
  - Bioactive compounds and physiological effects of nuts.
  - Bioactive compounds in meat, milk and dairy products.
  - Bioactive compounds in beer and wine.
  - Biological importance of fats in the human diet (I). General biological functions of fatty acids. Metabolism and biological
    - functions of essential fatty acids.
  - Beneficial properties and physiological effects of olive oil.
  - Functional fermented dairy products: probiotics, prebiotics and symbiotics.
- **Unit 4.** Clinical Applications of the main phytochemicals potential food and nutraceutical functional ingredients.
  - Enriched and fortified foods. Gene-diet interactions.
  - Nutritional supplements. Fortified foods and fortified foods.
  - Biological importance of fats in food (II). Functional impairment of biological processes in the body.
  - Clinical Applications of foods enriched in omega-3.
  - Clinical Applications of foods enriched in phytosterols.
  - Clinical Applications of foods enriched in isoflavones and phytoestrogens.
  - Relation between consumption of fruits and vegetables and health.
  - Free radicals and antioxidant nutrients. The antioxidant role of plant foods.
  - Vitamins and polyphenols.
  - Physiological effects and clinical applications of dietary fiber.
  - Scientific evidence of functional ingredients and nutraceuticals in the treatment of obesity, cardiovascular disease, diabetes, hypertension, cancer and other diseases.
  - Gene-diet interactions. Nutrigenetics and nutrigenomics: Personalized nutrition.

#### 4.4. Course planning and calendar

The four theory units will last 4, 3, 13 and 10 hours respectively.

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.

#### 4.5. Bibliography and recommended resources

Recommended to access the following URL (Uniform Resource Locator):

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=29233>