

## 29208 - Human Nutrition

### Syllabus Information

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**Academic Year:** 2019/20

**Subject:** 29208 - Human Nutrition

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

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

**ECTS:** 9.0

**Year:** 2

**Semester:** Annual

**Subject Type:** Basic Education

**Module:** ---

## 1.General information

### 1.1.Aims of the course

The general objective of the Human Nutrition is the knowledge of the nutrients and the nutritious utilization that the human body beings make of them, as well as the nutritional needs that the healthy adult has of them to maintain a correct nutritional status.

From this general objective, the following specific objectives are derived:

- Distinguish the different levels of nutritional recommendations for the individual and population.
- Know the energy, nutrients and other compounds present in foods from the point of view of their nutritious use, recommendations for the healthy adult, and the situations derived from his deficiency or excess.
- Know and use the various basic methods of assessing the nutritional status of healthy adults.
- Acquire skills in the management of theoretical formulas, tables, techniques, equipment and other tools in applied human nutrition.

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

The program of the subject of Human Nutrition, in the context of the Degree of Human Nutrition and Dietetics and of the subsequent functions of the professional Dietitian-Nutritionist, must have as main objective that the students reach the basic knowledge about nutrients, as well as the processes involved in their ingestion, transformation and use to from the food, for its incorporation into the structures, allowing the organism to carry out the physiological vital functions.

Therefore, Nutrition is based on the substantiate of Biochemistry and Human Physiology, subjects taught in the first course, but also maintains close contact with the Bromatology taught in the second year of this degree since the energy and the essential nutrients for our organism are provided through food. In the same way, this subject maintains a near relationship with other subjects of the second year such as Dietetics and Biochemistry and Food Technology, since both are about food, being necessary to know the nutrients who own those foods.

On the other hand, give great importance that the basic and fundamental knowledge acquired in this subject will form the bases of others disciplines directly related to the professional profile of Dietitian-Nutritionist such as Childhood Nutrition and Food, Sport: Nutrition and Food, Diet Therapy, Nutritional Pathology, etc. with great relevance for the professional development of the student who is enrolled in the Degree in Human Nutrition and Dietetics

### 1.3.Recommendations to take this course

Nutrition is a clear example of an integrative science related to multiple disciplines. The study of Human Nutrition is clearly based on the foundations of Biochemistry and Human Physiology. Therefore, to study this subject is recommended to have passed the first year subjects of Structural Biochemistry Degree, Metabolism and Gene Expression and Human Physiology since the good knowledge acquisition in human nutrition it goes on to understand previously its physiological and biochemical bases.

Moreover, **active participation in practical classes is recommended since all of them are closely linked to the theoretical matter and a large part directly related to the skills of the graduate.** In addition, it is done regular attendance at tutorials is necessary, as support for the development of individual practice reports and to give solution to general aspects of the subject.

## 2.Learning goals

### 2.1.Competences

Overcome the subject, the student will be more competent to ...

1. Know the bases and foundations of human nutrition and food.
2. Know the different levels of nutritional recommendations at individual and collective level.
3. Know the nutrients, their functions and their metabolic utilization. Know the basics of nutritional balance and its regulation.
4. Evaluate the nutritional requirements and calculate the energy needs in the healthy adult.
5. Know, early detect and evaluate deviations due to excess or defect, quantitative and qualitative nutritional balance.
6. Plan, perform and interpret the evaluation of the nutritional status of healthy adult subjects.
7. Manage the basic tools in ICT (Information and Communication Technology) used in the field of Nutrition.
8. Know other components of the diet, its function in the body and its bioavailability.
9. Be able to base the scientific principles that sustain the intervention of the Dietitian-Nutritionist, subjecting his professional performance to scientific evidence.
10. Develop the profession with respect to other health professionals, acquiring skills to teamwork.
11. Know, critically evaluate and know how to use and apply the information sources related to nutrition, food, lifestyles and health aspects.
12. Have the capacity to prepare reports and complete records related to the professional intervention of the Dietitian-Nutritionist

## 2.2.Learning goals

The student, to overcome this subject, must demonstrate the following learning results:

1. Demonstrate knowledge about the bases and foundations of human nutrition.
2. Demonstrate knowledge about nutrients and other components of the diet, their nutritional use and their recommendations for the healthy adult.
3. Integrate the different concepts of metabolic and nutritional balance and adapt them to the recommendations nutritional in the state of health.
4. Carry out a basic nutritional assessment in the healthy adult.
5. Manage the basic tools in ICT used in the spatiality of human nutrition.
6. Use the information received to substantiate the scientific principles that underlie the intervention of the Dietitian-Nutritionist, making his professional performance subject to scientific evidence.
7. Demonstrate ability to develop the profession with respect to other health professionals, acquiring teamwork skills.
8. Demonstrate the ability to critically assess, and know how to use and apply, related information sources with nutrition, food, lifestyles and health aspects.
9. Prepare reports and complete records related to the professional intervention of the Dietitian-Nutritionist.

## 2.3.Importance of learning goals

To reach the learning results of this subject will allow on one hand to acquire basic knowledge on the nutrients and other components of the diet, that are subsequently applied to other materials and, on the other, develop the competences directly related to the professional profile such as the basic assessment of nutritional status in the healthy adult.

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

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

The student must demonstrate that he has achieved the anticipated learning results through the following evaluation activities:

#### 1.- Realization of a written individual test on the theoretical and practical content.

- Test type questions, with a 25% penalty.
- Exercises or development issues.

Students who wish to do so can take a partial liberal examination of the subject after the 1st semester and it will be maintained until the June call. In the official June call, the partial exam corresponding to the 2nd semester will be carried out correctly (if it has exceeded the first partial) or a global test with the subject of the entire course.

The passing of this test accredits the achievement of learning outcomes number 1, 2, 3, 4, 6 and 8.

#### 2.- Presentation of the report of the workshops or elaboration of a real case chosen by the student.

The student must present a report of measurements and assessments that will be made to a classmate during the workshops. If you prefer or have not attended the practice you can choose a real case on which to perform the nutritional assessment.

This work is presented in writing before the official call date in June.

The passing of this test accredits the achievement of the learning results number 4, 5, 7 and 9.

### 3.- Tests for students who appear in September exams.

For those students who have to appear in the September session because they have not passed the subject in June, the evaluation will be done through the global written test and presentation of the workshop report.

#### 4.- Levels of demand.

- To pass the subject through partial tests must reach a minimum of 5.0 out of 10.0 in each of them. The overall written test is exceeded by 5.0 out of 10.0. The written test represents 80% of the final grade.

- The report is approved one with 5.0 out of 10.0. This test represents 20% of the final grade.

- Both tests (written test and report) must be overcome independently. In the event that the student exceeds only one of the parties academic course

#### Grading system

The numerical rating is expressed in accordance with what is established in the art. 5.2 of Royal Decree 1125/2003 of 5 of September (BOE September 18), which establishes the European credit system and the system of qualifications in university degrees of an official nature and valid throughout the national territory. Thus, the qualifications set in the following range: From 0 to 4.9: Suspense (S); from 5.0 to 6.9: Approved (A); from 7.0 to 8.9: Notable (N); from 9.0 a 10: Outstanding (SB). The mention of honor registration will be granted to students who have obtained a grade equal to or greater than 9.0.

## 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 tutorials.

### 4.2.Learning tasks

This course is organized as follows:

- **Lectures** (45 hours). The basic theoretical concepts are exposed in the classroom. The teachers will make material of the course available on Moodle
- **Practice sessions** (45 hours): Practical application of the knowledge acquired in the theoretical program and include
  - **Laboratory practices and workshops** (15 hours). Students manage teams related to the competencies of the course.
  - **Seminars and computer sessions** (30 hours ). students, individually or in small groups, solve problems related to the theory topics.
- **Autonomous work and study** (130 hours). Study of theoretical contents for the written test and individual work of the course.
- **Exams** (2 hours). Mid-term or global written test.
- **Tutorials.**

### 4.3.Syllabus

This course will address the following topics:

#### Lectures

##### Section I. Introduction to human nutrition.

The first section is dedicated to basic concepts in human nutrition as classification of nutrients and type of nutritional recommendations, fundamentals, applications and target groups.

- Topic 1. Introduction to nutrition. Classification of nutrients.
- Topic 2. Nutritional recommendations: Dietary Reference Intakes, and other nutrient recommendations in the healthy adult.

##### Section II: Energy metabolism and energy macronutrients.

The second section will focus on the study of energy metabolism and energy balance in humans, as well as integrated vision of proteins, carbohydrates and lipids metabolism in human nutrition.

- Topic 3. Energy balance: energy intake and energy expenditure.
- Topic 4. Proteins.
- Topic 5. Lipids.
- Topic 6. Carbohydrates.
- Topic 7. Dietary fibers.
- Topic 8. Integrated macronutrient metabolism in human nutrition.

##### Section III: Micronutrients and other dietary components

In the third part, water, vitamins and minerals will be studied from the point of view of human nutrition (functions, general metabolism and nutritional needs). This section ends with the study of other diet components with important physiological functions such as nitrogenous substances, stimulatory compounds, anti-nutrients and various plant compounds (phytochemicals).

- Topic 9. Introduction to the micronutrients.
- Topic 10. Vitamins and minerals.
- Topic 11. Water.
- Topic 12. Other dietary components.

#### Section IV: Assessment of nutritional status.

The final section of the theoretical program will focus on the basics, techniques and protocols used in adult nutritional assessment in order to provide the basic knowledge for application to other courses.

- Topic 13. Methodology of nutritional status assessment: fundamentals and applications.
- Topic 14. Other components of nutritional status assessment.
- Topic 15. Dietary intake assessment.
- Topic 16. Body composition assessment.

#### **Practice sessions**

- DIETARY REFERENCE INTAKES: Nutrient adequacy ratio. Nutritional food labelling.
- ENERGY EXPENDITURE AND ENERGY BALANCE: Determination of energy expenditure using indirect calorimetry. Energy metabolism. Theoretical determination of total daily energy expenditure and its components.
- CARBOHYDRATES. Glycemic index and glycemic load.
- PROTEINS: Dietary protein quality evaluation in human nutrition.
- MINERALS: Evaluation of iron dietary intake and its bioavailability.
- ASSESSMENT OF NUTRITIONAL STATUS:
  - Body composition assessment using anthropometry and electric bioimpedance.
  - Methodology of dietary intake assessment.
- Biochemical assessment: biochemical measures, malnutrition rates.
  - Analysis and evaluation of changes in nutrient concentrations in blood. Glucose and lipid metabolism disorders in relation to nutrition.
  - Assessment of body protein status: nitrogen balance; urinary creatinine and serum proteins. Structured questionnaires in nutritional screening.
  - Use of different software tools in human nutrition.

#### **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.

#### **4.5.Bibliography and recommended resources**

The recommended bibliography of this subject can be consulted in the following link:  
<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=29208>