SYLLABUS

1. COURSE DESCRIPTION

Degree:	**Nutrition and Dietetics**
Course:	**Cell Biology**
Module:	
Department:	**Physiology, Anatomy and Cell Biology**
Academic Year:	**2017-18**
Term:	**First**
ECTS credits:	**6**
Year:	**1st year**
Type:	**Basic**
Language:	**Spanish**

Course Model:	**C1**
a. Basic learning (EB):	**50 %**
b. Practical learning (EPD):	**50 %**

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2. LECTURERS

Coordinator	
Name:	**Antonio Arroyo Luque**
School:	**School of Experimental Sciences**
Department:	**Physiology, Anatomy and Cell Biology**
Area:	**Cell Biology**
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3. TOPICS

BASIC LEARNING (EB)

1. Concept and definition of cell. Cell theory. General characteristics of the eukaryotic cell: general structure.

2. The plasma membrane as a selective semipermeable barrier. Osmosis. Accumulation of energy in ionic gradients: electrolytic equilibrium.

3. Cell compartmentation: main organelles and their functions.

4. Intracellular transport of protein and lipid materials.

5. Cellular bioenergetics. Uses of mitochondrial energy: generation of ATP, heat and reactive oxygen species.

6. Cytoskeleton and cellular movements.

7. Cell proliferation and tissue renewal.

8. Constitution of tissues and organs. Intercellular communication.

9. Separation between elements: epithelial tissues.

PRACTICAL LEARNING (EPD)

1. Development of specific topics based on the subject.

2. Optical microscopy: fundamentals and use of the optical microscope.

3. Importance of the electrolytic composition of plasma. Alteration of the ionic gradients of the cell membrane and their effects on the cell physiology cell.

4. Staining. Sample preparation: fixation, inclusion and cutting with microtome. Hematoxylin-eosin stain and assembly. Observation of the preparations. (Robe required)

5. Electron microscopy. Treatment and preparation of samples. Types of electronic microscopes. Ultra-structural study of the different components cellular elements.

6. Cellular elements of the blood. Obtaining, Giemsa staining and observation of blood extensions. Blood groups. (Robe required)

7. to 10. Development of specific aspects on practical issues related with the subject. Some examples of topics to develop are:

• Importance of diet in the fluidity of the membrane

• Metabolic diseases

• Nutrition and cancer

• Food fraud

• Pathological obesity

• Food intolerances and allergies…

The students must prepare, in pairs, one of these topics and expose it to the rest of the group for an approximate time of 30 min. After the exhibition, It will open a brief debate on the presented topic.