

## SYLLABUS

### 1. COURSE DESCRIPTION

<b>Degree:</b>	Biotechnology
<b>Course:</b>	Cell Cultures
<b>Module:</b>	Bioengineering and Biotechnological Processes. Biological Systems
<b>Department:</b>	Physiology, Anatomy and Cell Biology
<b>Academic Year:</b>	2016/17
<b>Term:</b>	First
<b>ECTS credits:</b>	4,5
<b>Year:</b>	4 <sup>th</sup> year
<b>Type:</b>	Compulsory
<b>Language:</b>	Spanish

<b>Course Model:</b>	B2	
<b>a. Basic learning (EB):</b>		60%
<b>b. Practical learning (EPD):</b>		25%
<b>c. Guided Academic Activities (AD):</b>		25%

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### 2. LECTURERS

**2.1. Coordinator: José A Sánchez Alcázar**

#### 2.2. Lecturers

<b>Name:</b>	<b>DANIEL JOSÉ MORENO FERNÁNDEZ-AYALA</b>
<b>School:</b>	<b>School of Experimental Sciences</b>
<b>Department:</b>	<b>Physiology, Anatomy and Cell Biology</b>
<b>Area:</b>	<b>Cell Biology</b>
<b>Office Hours:</b>	<b>Mondays and Tuesdays: 9.00-12.00</b> <b>Previous appointment through e-mail.</b>
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<b>Name:</b>	<b>Juan Camacho Cristóbal</b>
<b>School:</b>	<b>School of Experimental Sciences</b>
<b>Department:</b>	<b>Physiology, Anatomy and Cell Biology</b>
<b>Area:</b>	<b>Plant Physiology</b>
<b>Office Hours:</b>	<b>Tuesdays: 10.00-14.00 and 15.00-17.00</b> <b>Previous appointment through e-mail.</b>
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<b>Name:</b>	<b>José Antonio Sánchez Alcazar</b>
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## SYLLABUS

### 3. TOPICS

#### **BASIC LEARNING (EB)**

#### **TOPIC I → IN VITRO CULTIVATION OF PLANT CELLS AND PLANT TISSUES**

UNIT 1. In vitro culture methodology.

UNIT 2. Types of in vitro culture.

UNIT 3. Applications of in vitro cultures.

#### **TOPIC II → IN VITRO CULTIVATION OF ANIMAL CELLS AND ANIMAL TISSUES**

UNIT 4. Introduction: General information on animal cell culture techniques.

UNIT 5. Basic requirements for cell culture.

UNIT 6. Terminology and description of the different types and cell culture systems.

UNIT 7. Primary crops.

UNIT 8. Cell lines.

UNIT 9. Organotypic and three-dimensional cultures.

UNIT 10. Flow cytometry.

UNIT 11. Cultures for regenerative therapies.

UNIT 12. Industrial applications of cell cultures.

#### **PRACTICAL LEARNING (EPD) AND GUIDED ACTIVITIES (AD)**

Activity 1 Laboratory practice: Isolation of protoplasts (to be done in 1 session of EPD practices)

Activity 2 Laboratory practice: Maintenance and subculture of cells (practice of laboratory to perform in 2 sessions).

Activity 3 Laboratory practice: Practical work to be carried out in 2 AD sessions. Research work that will be displayed in front of the class. At the beginning of the course, the teachers will propose a series of generic topics that the students will develop in groups of 3 or 4 students.