

## SYLLABUS

### 1. Course description

<b>Degree:</b>	<b>Biotechnology</b>
<b>Course:</b>	<b>Microbiology</b>
<b>Module:</b>	<b>2-Fundamentos de Biología, Microbiología y Genética</b>
<b>Department:</b>	<b>Molecular Biology and Biochemical Engineering</b>
<b>Academic Year:</b>	<b>2017-2018</b>
<b>Term:</b>	<b>First</b>
<b>ECTS credits:</b>	<b>6</b>
<b>Year:</b>	<b>2<sup>nd</sup> year</b>
<b>Type:</b>	<b>Basic</b>
<b>Language:</b>	<b>Spanish</b>

<b>Course Model:</b>	<b>B1</b>	
<b>a. Basic learning (EB):</b>		<b>60 %</b>
<b>b. Practical learning (EPD):</b>		<b>40 %</b>

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### 2. Lecturers

<b>Coordinator: FRANCISCA REYES RAMIREZ</b>	
<b>Name:</b>	<b>FRANCISCA REYES RAMIREZ</b>
<b>School:</b>	<b>SCHOOL OF EXPERIMENTAL SCIENCES</b>
<b>Department:</b>	<b>MICROBIOLOGY</b>
<b>Area:</b>	<b>MOLECULAR BIOLOGY AND BIOCHEMICAL ENGINEERING</b>
<b>Office Hours:</b>	<b>Wednesdays and Thursdays (11.00-13.30)</b> <b>(Always contact previously through e-mail)</b>
<b>Office:</b>	<b>22-03-04</b>
<b>E-mail:</b>	<b>freyram@upo.es</b>
<b>Phone:</b>	<b>954348644</b>

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### 3. Topics

TOPIC I INTRODUCTION:

**Unit 1: Microbiology and microorganisms**

**Unit 2: Microbiological techniques, nutrition and microbiological culture**

**Unit 3: Microbial growth and its quantification**

TOPIC II PROKARYOTIC CELL: STRUCTURE AND FUNCTION:

**Unit 4: Cell wall**

**Unit 5: Plasma membrane**

**Unit 6: Other cell components**

TOPIC III BACTERIOPHAGES AND EUKARYOTIC MICROORGANISMS

**Unit 7: Bacteriophages**

**Unit 8: Eukaryotic microorganisms: fungi**

TOPIC IV GENERAL GENETIC MECHANISMS IN BACTERIA

**Unit 9: General and distinctive principles of prokaryotes: Organization, Replication of DNA**

**Unit 10: Gene expression in microorganisms**

**Unit 11: Mutation. Recombination and Transposition**

TOPIC V GENETIC ANALYSIS AND GENETIC MANIPULATION OF BACTERIA

**Unit 12: Horizontal transfer phenomena**

**Unit 13: Genetic manipulation in bacteria**



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### TOPIC VI GENE EXPRESSION REGULATION

#### **Unit 14: Regulation of the start of transcription**

#### **Unit 15: Regulation of elongation / termination and translation**

#### PRACTICE

**1 Basic microbiological techniques:** basic techniques of cultivation and evaluation of microbial growth will be carried out, as well as some basic techniques of staining and microscopy of bacteria.

**2. Genetic analysis in bacteria:** some of the techniques of genetic manipulation in bacteria will be shown, and their application in genetic analysis and in regulation of gene expression.



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