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|  | PROCESO PARA EL DESARROLLO DE LAS<br>ENSEÑANZAS DE LA ESCUELA DE<br>INGENIERÍAS AGRARIAS |                      | <br>Escuela de Ingenierías Agrarias |
|   |  | CÓDIGO: P/CL009_D002 |  |

## PROGRAMME IN MICROBIOLOGY

Academic course: 2019-2020

| Identification and characteristics of the subject                                  |                                    |                    |                   |               |   |
|--|------------------------------------|--------------------|-------------------|---------------|---|
| Code   | 501247                             |                    |                   | Créditos ECTS | 6 |
| Name (Spanish)   | <b>Microbiología</b>               |                    |                   |               |   |
| Name (English)   | <b>Microbiology</b>                |                    |                   |               |   |
| Degree   | Food Science and Technology Degree |                    |                   |               |   |
| Center   | Agricultural Engineering School    |                    |                   |               |   |
| Semester   | THERD (3°)                         | Type               | <u>Compulsory</u> |               |   |
| Module   | Microbiology and Biochemistry      |                    |                   |               |   |
| Subject  | Microbiology                       |                    |                   |               |   |
| Language   | Spanish                            |                    |                   |               |   |
| Professor/s  |                                    |                    |                   |               |   |
| Name   | Room                               | e-mail             | Web link          |               |   |
| <b>Alejandro Hernández León</b>  | D715                               | ahernandez@unex.es |                   |               |   |
| <b>María José Benito Bernaldez</b>   | D710                               | mjbenito@unex.es   |                   |               |   |
| Field of knowledge   | Nutrition and Bromatology          |                    |                   |               |   |
| Department   | Animal Production and Food Science |                    |                   |               |   |
| Coordinator (if there is more than one professor)                                  | <b>Alejandro Hernández León</b>    |                    |                   |               |   |
| Lessons and contents   |                                    |                    |                   |               |   |
| Syllabus   |                                    |                    |                   |               |   |
| <b><u>SECTION 1. GENERAL MICROBIOLOGY</u></b>                                      |                                    |                    |                   |               |   |
| LESSON 1. INTRODUCTION TO MICROBIOLOGY   |                                    |                    |                   |               |   |
| LESSON 2. OBSERVATION OF MICROORGANISMS. MICROSCOPY AND STAINS.                    |                                    |                    |                   |               |   |
| LESSON 3: NUTRITION AND BACTERIAL METABOLISM. MICROBIAL GROWTH                     |                                    |                    |                   |               |   |
| LESSON 4. BACTERIAL GENETICS: PHENOTYPIC AND GENOTYPIC VARIATIONS. MUTATIONS       |                                    |                    |                   |               |   |
| LESSON 5. EVOLUTION, SYSTEMATICS AND MICROBIAL TAXONOMY.                           |                                    |                    |                   |               |   |
| LESSON 6. CONTROL OF MICROBIAL GROWTH. PHYSICAL AND CHEMICAL AGENTS. ANTIBACTERIAL |                                    |                    |                   |               |   |

LESSON 7. THE MICROBIOTA. PATHOGENESIS OF BACTERIAL INFECTIONS.

LESSON 8. MICROBIOLOGICAL IMMUNOLOGY. ANTIGENS AND ANTIBODIES.  
IMMUNOLOGICAL TECHNIQUES APPLIED TO MICROBIOLOGY

LESSON 9. VIRUS.

LESSON 10. FUNGI.

LESSON 11. EPIDEMIOLOGY AND PROPHYLAXIS.

**SECTION 2. MICROORGANISMS IN THE ENVIRONMENT**

LESSON 12. FUNDAMENTALS OF MICROBIAL ECOLOGY.

LESSON 13. MICROBIOLOGY OF THE MAIN NATURAL ECOSYSTEMS.

LESSON 14. MAIN MICROORGANISMS OF INTEREST IN FOOD.

**PRACTICAL SYLLABUS**

PRACTICAL LESSON 1: PREPARATION OF CULTURE MEDIA.

PRACTICAL LESSON 2: CULTURE TECHNIQUES AND MICROBIAL ISOLATION

PRACTICAL LESSON 3: MICROSCOPIC OBSERVATION OF MICROORGANISMS

PRACTICAL LESSON 4: DIFFERENTIAL STAINS

PRACTICAL LESSON 5: RECOGNITION OF PROKARYOTIC MICROORGANISMS

PRACTICAL LESSON 6: MICROBIAL GROWTH CURVES.

PRACTICAL LESSON 7: TECHNIQUES OF SOWING AND COUNTING

**SEMINAR ACTIVITIES**

TAXONOMIC DESCRIPTION OF A GENUS / MICROBIAL SPECIES