



ADVANCED MICROBIOLOGY (2015-16)

GENERAL INFORMATION

Code 26533

ECTS Credits 6

Departments and areas

Department	Area	Area	Report R.
PHYSIOLOGY, GENETICS AND MICROBIOLOGY	MICROBIOLOGY	YES	YES

Studies

DEGREE IN BIOLOGY

Context of subject

Advanced Microbiology is a complement to the general Microbiology course (taught in THE 2nd year in the Biology degree) and offers a deeper insight into Environmental and Molecular and Food Microbiology.



OBJECTIVES

Subject objectives/competences (2015-16)

- To ascertain the role of microbes and microbial metabolism in sustaining the biosphere and the biogeochemical cycles and to analyze the microbial diversity harbored in aquatic and terrestrial environments.
- To know and apply the molecular and culture dependent techniques used to study microbes in their natural environments
- To understand the molecular bases of viruses and their interactions with their hosts
- To know genomic and metagenomic analysis techniques and their application to the study of the evolution of microbes.
- To work safely with microbes, reagents, and instruments commonly used in food microbiology and molecular microbial ecology.
- To plan, design, carry out, and analyze the results of experiments in Microbiology

CONTENTS

Theoretical and practical contents (2015-16)

T0. Introduction (1h)

1. FOOD MICROBIOLOGY (14h)

T1. Main foodborne pathogens

T2. The Microbiology of food preservation

T3. Fermented foods

2. MOLECULAR MICROBIOLOGY (10h)

T4. Molecular virology

T5. Microbial genomics and metagenomics

T6. Microbial evolution

3. ENVIRONMENTAL MICROBIOLOGY (15h)

T7. Microbial ecology

T8. Microbes in the biogeochemical cycles

T9. Aquatic microbiology

T10. Soil microbiology

CONTENIDO PRÁCTICOS

Case solving activities: TUT1. Bioinformatics (genomics and metagenomics) (3h)

Laboratory sessions

P1. Food Microbiology (8h)

1.- Staphylococci

2.- Bacillus cereus

3.- Listeria monocytogenes

3.- Milk analysis

P2. Microbial Ecology: Molecular analysis of environmental samples (9h)

EVALUATION

Instruments and criteria of Evaluation 2015-16

There are two blocks: continuous evaluation (CE) and final written exam (FE) that contribute each 50% to the final mark.

CE includes the following activities, with their respective contribution to the final mark:

Laboratory case solving activities (40%)

Bioinformatic sessions (10%)

FE includes questions on the contents of the lectures. It will include multiple choice, short answer and short essay questions

In order to pass the subject, a 4 over 10 is needed both in CE and FE, and both marks averaged have to be ≥ 5 . If the average of both marks is ≥ 5 but one of the individual marks of CE and FE is ≤ 4 , the final mark will be the lowest of both.

• The assistance to the lab and case solving sessions, as indicated in the schedule provided by the University, is mandatory. Only in extraordinary cases the students missing some sessions will be allocated in other groups.

• EC Grades obtained will remain valid for two academic years although the students can repeat the activities and the corresponding exams if they wish to do so.

• During the extraordinary calls (July and December) the student will be able to repeat only the FE and will keep the previous CE marks. Those students with marks ≤ 4 (over 10) in the previous CE will have to take also a written exam on the lab sessions contents.

• The chronogram only reflects the activities corresponding to the student of a given lab group and has to be adapted accordingly to the specific schedules of the individual groups.

Type	Criterion	Description	Ponderation
FINAL TEST	Examen escrito sobre los contenidos de teoría consistente tanto en preguntas tipo test de respuestas múltiples como en preguntas cortas de desarrollo.	Prueba final	50
ACTIVITIES OF EVALUATION DURING THE SEMESTER	Ejercicios planteados y/o resueltos en clase durante las sesiones de tutorías grupales.	Tutorías	10
ACTIVITIES OF EVALUATION DURING THE SEMESTER			40