

27135 - Biotechnology applied to Immunology and Microbiology

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	446 - Degree in Biotechnology
ECTS	6.0
Course	4
Period	Second semester
Subject Type	Optional
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The learning process that is designed for this subject is based on the following:

Lectures (3 ECTS). In these classes the basic theoretical knowledge of the subject is presented to the students.

Practical classes in the laboratory (1.2 ECTS). Students will take a series of practical courses led by a teacher. Each session will lead to a discussion of the results, which will lead to the development of an individual report

Seminars (1.8 ECTS). A portion of these classes is reserved for seminars by professionals related to biotechnology companies working with immunochemical applications or manufacture of vaccines. The rest of these classes will be used for students to present seminars that they have prepared in connection with the subject matter of the course. Teachers will propose some topics for seminars, but they also can be proposed by the students.

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5.2.Learning activities

Lectures: computer screen projections (PowerPoint) will be used, including small animations, videos and off-line browsing. In these classes the basic knowledge of the subject is presented to students, which will be grouped into three modules:

Block 1 (Area of Microbiology, 1.15 ECTS)

Block 2 (Areas of Biochemistry and Cell Biology, 1.15 ECTS)

Block 3 (Area of Immunology, 0.7 ECTS)

Practical classes in the laboratory

Block 1 (Area of Microbiology, 0.6 ECTS)

Block 2 (Area of Cell Biology, 0.6 ECTS)

Seminars

Block 1. Real cases in companies , solving real problems . At least 3 seminars given by professionals (0.6 ECTS)

Block 2. Seminars given by students and valid for evaluation (1.2 ECTS)

5.3.Program

Program of the lectures

Block 1 . Area of Microbiology

1.1 . Typing and molecular characterization of microorganisms of industrial and medical interest.

1.2 . Rational design of antimicrobials.

1.3 . Rational design and updated vaccines.

Block 2 . Areas of Biochemistry and Cell Biology .

2.1 . Production of polyclonal and monoclonal antibodies

2.2 . Application of polyclonal and monoclonal antibodies in diagnostic and screening tests .

Block 3 . Area of Immunology .

3.1 . Application of Monoclonal Antibodies in antitumor and autoimmune disorders.

3.2 . Application of monoclonal antibodies in organ transplantation and prevention of immune rejection .

Program of the practical course

Area of Microbiology. Molecular characterization and analysis of vaccines and test of the immunity conferred.

Area of Cell Biology. Production, purification and assay of monoclonal antibodies from hybridomas

5.4.Planning and scheduling

Schedule of the sessions and presentation of works

These activities will take place in the second semester in the classroom of the Faculty of Science that this center allocated for this purpose. The training activity 1 will be implemented in the classroom in the afternoon , along with other theoretical subjects of the degree . The training activities 2 and 3 will be held in the morning in groups not exceeding 12 students , according to the schedule that will be notified before the start of classes.

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5.5. Bibliography and recommended resources