

## 27116 - Clinical Biotechnology

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 27116 - Clinical Biotechnology

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 446 - Degree in Biotechnology

**ECTS:** 9.0

**Year:** 3

**Semester:** Annual

**Subject type:** Compulsory

**Module:**

### 1. General information

Its general objective is to introduce the student to the Biotechnology applied to the clinical field. Emphasis will be placed on the study of the mechanisms that cause diseases, as well as on the diagnosis, application to the pharmaceutical field and treatment of these.

"These approaches and objectives are aligned with the following Sustainable Development Goals of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement." Particularly in the Goals: 3 health and welfare, 4 quality education, 5 gender equality, 8 decent work and economic growth, and 9 industry, innovation and infrastructure.

### 2. Learning results

**To pass this subject, the student must demonstrate the following results:**

To understand the use of molecular markers and their semiology value in the various diseases.

To use these markers in the diagnosis, prognosis and follow-up of alterations in the organs and systems.

To face the integration of results.

To understand and appreciate the relevance of advances in the field.

To search for and analyse specific information and convey aspects of the subject in an understandable way.

To explain and argue adequately the fundamentals of the different aspects that make up the subject.

To present and explain work done individually.

### 3. Syllabus

**Topic 1.-** Introduction.

**Subjects 2-6.-** Diseases of glycaemic metabolism.

**Topic 7-9.-** Dyslipidaemias.

**Topic 10-13.-** Disorders of protein metabolism and hyperuricemia.

**Topics 14-15.-** Lysosomal Depository Diseases.

**Topic 16.-** Clinical biotechnology research.

**Topics 17-18.-** Mitochondrial and Peroxisomal Diseases.

**Topic 19.-** Pathologies of oxidative stress.

**Topics 20-21.-** Nucleic acid therapy.

**Topics 22-23.-** Anemia and haemostasis.

**Themes 24-25.-** Renal and cardiac physiopathology.

**Topics 26-27.-** Gastrointestinal pathophysiology.

**Topic 28.-** Pathophysiology of bone metabolism.

**Topics 29-30.-** Physiopathology of the pituitary gland.

**Topic 31.-** Thyroid physiopathology.

**Topics 32-33.-** Physiopathology of the adrenal gland.

**Topic 34.-** Physiopathology of the sexual glands.

### 4. Academic activities

**Theoretical classes.** Face-to-face. 6 ECTS. The theoretical foundations of the subject will be presented and the material will be available on UNIZAR's virtual platform.

**Experimental work.** 2 ECTS. This activity will allow acquiring the capacity and skills necessary to analyse and solve particular problems.

**Seminars.** 0.5 ECTS. Specific situations are presented to deepen the theoretical knowledge of the subject.

**Presentation and explanation of a work.** 0.5 ECTS. Students will collect information on a particular topic. The teacher will supervise the individual work at all times by scheduling tutoring sessions and finally, the work will be presented in class.

## 5. Assessment system

A. There will be two mid-term exams and a final. The midterm exams will consist of 50 multiple choice questions on the theoretical syllabus of the evaluated period. The final exam will consist of 100 multiple-choice questions. The questions will have 5 options with one correct. Incorrect answers will not be discounted. 0.2 per question will be subtracted in the overall grade. To pass the first midterm, students must obtain a grade equal to or higher than 5. The grade will be kept in the extraordinary call for exams. The tests will be graded from 0 to 10 and will contribute 70% to the final grade.

B. The practices of the subject will be graded from 0 to 10 and will contribute 10% to the final grade

C. Presentation of individual work on a topic of the subject. A summary will be presented in writing and orally for a maximum of 12 minutes. It will be graded from 0 to 10 and will contribute 20% to the final grade.

A 4.5 must be obtained in section A in order to consider the grades of sections B and C and the sum must be higher than 5 to pass

Grades for passed individual work and practices will be kept for two years.

## 6. Sustainable Development Goals

3 - Good Health & Well-Being

4 - Quality Education

5 - Gender Equality