

69311 - Cell mechanobiology

Información del Plan Docente

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	547 - Master's in Biomedical Engineering
ECTS	3.0
Year	1
Semester	Second semester
Subject Type	Optional
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures where the main contents are presented and discussed; computer lab sessions, practical tasks, and specific research activities.

Students are expected to participate actively in the class throughout the semester.

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5.2.Learning tasks

The course includes the following learning tasks:

- **A01 Lectures** (24 hours). The main course contents are presented and student participation is encouraged.
- **A03 Computer lab sessions** (6 hours). Different lab sessions are carried out. Notes for each lab session where the different activities are planned will be available before the session. In the following days after the lab session, the student should hand in a report of the corresponding lab session.
- **A05 Assignments**. Different activities/tasks are proposed related to the main contents of the course.
- **A06 Tutorials**. Students may ask any questions they might have about unclear contents of the course.
- **A08 Assessment** (2 hours). The student will take an exam and submit several reports derived from the computer lab sessions and the assignments.

5.3.Syllabus

The course will address the following topics:

1. Main concepts of cell mechanics
2. Introduction to statistical mechanics
3. Experiments on cell mechanics
4. Mechanics of cell cytoskeleton
5. Mechanics of cell membrane
6. Cell adhesion
7. Contraction and cell migration
8. Cell mechanotransduction

5.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

5.5.Bibliography and recommended resources

- **BB**. Jacobs, C.R. Introduction to Cell Mechanics and Mechanobiology / Christopher R. Jacobs, Hayden Huang, Ronald Y. Kwon. New York : Garland Science, 2012.

All materials related to the course are available in add.unizar.es.