

Información del Plan Docente

Academic Year	2017/18
Faculty / School	104 - Facultad de Medicina 229 - Facultad de Ciencias de la Salud y del Deporte
Degree	304 - Degree in Medicine 305 - Degree in Medicine
ECTS	6.0
Year	1
Semester	First semester
Subject Type	Basic Education
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 lecture class will be developed through an expositive methodology with presentations of the teacher, developing the different didactic units to the complete group.

In the problem-solving sessions and seminars the methodology will be active, attempting the greater involvement of the

students

5.2.Learning tasks

Lectures, according to the program sow in section 5.3

Practice sessions, which are organized according to the different thematic blocks:

- Practices of identification of images of cellular ultrastructure (Electron Microscopy): They consist in the interpretation and discussion of ultrastructural images, relating the structure and cellular function. They will be developed in parallel to the didactic units, once acquired the theoretical knowledge descriptive of the ultrastructure of the different organelles. 8 hours per student.

- Problem‐solving sessions and Genetic Problems: Students will have beforehand the statement of the different problems that must work individually, to solve in class the difficulties encountered. 8 hours per student.

- Laboratory sessions: They are carried in small groups, being their general objective that the students handle the optical microscope with ease, while they make stains and begin in different methods of study of the cell:

Principles of optical microscopy.

Observation of bacteria, yeasts and buccal epithelium.

Osmotic phenomena.

Realization of cell cultures: Technique of explants.

Establishment, staining and observation of cells in culture

Observation of the phases of mitosis.

Human karyotype.

Every student will be informed about the risks that the practice of this subject can carry out, as well as if dangerous products are handled and what to do in case of an accident, and must sign the commitment to comply with the work and safety rules in order to Them. For more information, consult the information for students of the Unit of Prevention of Occupational Hazards: <http://uprl.unizar.es/estudiantes.html>

- Scientific seminars: conducted by students on various topics of scientific interest in the field of Biomedicine under the supervision of the faculty.

5.3.Syllabus

- Plasma membrane structure.
- Cell junctions, cell adhesion and extracellular matrix.
- Membrane transport of small molecules.
- Membrane transport of large particles and macromolecules: endocytosis and exocytosis.
- Mechanisms of cell communication. Signal transduction.
- The cytoskeleton: Actin filaments. Intermediate Filaments. Microtubules.
- Cytosol. Ribosomes.
- Intracellular compartments and protein sorting. Endoplasmic reticulum. Golgi apparatus.
- Lysosomes. Peroxisomes.
- Mitochondria.
- Interphase nucleus. Cellular division.
- The cell cycle. Apoptosis. Cell differentiation. Stem cells.
- The structure and cycle of chromosomes.
- Basic genetics mechanisms: Types of heredity . Interaction between genes and environment.
- Genetic linkage and recombination. Haplotypes.
- DNA, chromosomes and genomes.
- Control of gen expression.
- Genic mutation. Polimorphisms.

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- DNA repair.
- Oncogenes and cancer.

5.4.Course planning and calendar

Lectures will be adapted to the academic calendar.

Practice sessions will begin one week after the beginning of the lecture classes.

The schedule of the seminars and practical classes of each week, as well as the distribution of the students will appear beforehand, in the bulletin board of the subject and in the network.

The dates of presentation of works will be agreed individually with each of the teachers responsible.

5.5.Bibliography and recommended resources

Zaragoza:

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|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BB | Biología celular y molecular / Harvey Lodish ... [et al.] ; supervisión de la traducción a cargo de : Norma B. Sterin de Speziale, Norberto A. Vidal . 5ª ed., [3ª reimp.] Buenos Aires [etc.] : Editorial Médica Panamericana, 2009 |
| BB | Biología molecular de la célula / Bruce Alberts ... [et al.] ; traducción coordinada por Juan Francisco Montes Castillo, Miquel Llobera i Sande . - 6ª ed. Barcelona : Omega, D.L. 2016 |
| BB | Biología molecular del gen / James D. Watson... [et al.] . - 7ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2016 |
| BB | Genética / Anthony J. F. Griffiths ... [et al.] . 9ª ed. Madrid [etc.] : McGraw-Hill Interamericana de España, cop. 2008 |
| BB | Nussbaum, Robert L.. Genética en medicina / Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Williard ; preparación de nuevos casos clínicos y actualización de los anteriores, Ada Hamosh. - 8ª ed. Ámsterdam ; Barcelona ; Madrid [etc.] : Elsevier Masson , D.L. 2016 |
| BB | Pierce, Benjamin A. : Genética : un enfoque conceptual / Benjamin A. Pierce . - 5ª ed. Buenos Aires ; Madrid [etc.] : |

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 Cooper, Geoffrey M.. La célula / Geoffrey M. Cooper, Robert E. Hausman. - 6ª ed.
 Madrid : Marbán, cop. 2014
- BC** Jenkins, John B.. Genética / John B. Jenkins ; versión española por Alfonso Jiménez-Sánchez . - [1ª ed., reimp.]
 Barcelona [etc] : Reverté, D.L.1985
- BC** Klug, William S.. Conceptos de genética / William S. Klug, Michael R. Cummings, Charlotte A. Spencer ; traducción y revisión técnica, José Luis Ménsua, David Bueno i Torrens . - 8ª ed. Madrid [etc.] : Pearson, D.L. 2006
- BC** Luque Cabrera, José. Texto ilustrado de biología molecular e ingeniería genética : conceptos, técnicas y aplicaciones en Ciencias de la Salud / José Luque Cabrera, Ángel Herráez Sánchez .
 Barcelona [etc.] : Elsevier , D.L. 2008
- BC** Novo Villaverde, Francisco Javier. Genética humana: conceptos, mecanismos y aplicaciones de la Genética en el campo de la Biomedicina/ Francisco Javier Novo Villaverde . Madrid [etc.] : Pearson Prentice Hall, D.L. 2006
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- BB Klug, William S.. Conceptos de genética / William S. Klug, Michael R. Cummings, Charlotte A. Spencer ; traducción y revisión técnica, José Luis Ménsua, David Bueno i Torrens . 8ª ed. Madrid [etc.] : Pearson, cop. 2006
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- BB Thompson, Margaret W.. Genética en medicina / Margaret W. Thompson, Roderick R. McInnes, Huntington F. Willard. [4ª ed.] Barcelona [etc.] : Masson, 1996

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<http://psfunizar7.unizar.es/br13/eBuscar.php?tipo=a>