Approval date: 21/06/2023

COURSE GUIDE

Molecular Pathology (20411B4)

Grado (Bachelor's Degree)	Grado en Farmacia	Branch	Health Sciences
Module	Complementos de Formación	Subject	Patología Molecular

Year of study	3º	Semester	1º	ECTS Credits	6	Course type	Elective course

PREREQUISITES AND RECOMMENDATIONS

- Have an adequate level of English (European level B1, B2). The course will be taught totally in English
- Adequate skills of office software.
- Adequate knowledge of the relevant aspects of genomics, transcriptomics, epigenomics. proteomics and System Biology.
- Adequate knowledge of Biochemistry Metabolic and Structural, Biotechnology, Cellular Physiology and Immunology

BRIEF DESCRIPTION OF COURSE CONTENT (According to the programme's verification report)

- Genetic Diseases. Polymorphism and mutations.
- Disorders in the synthesis, folding, secretion and degradation of proteins.
- Genetic disorders responsible for changes in proliferation and cell death.
- Inflammation.
- Molecular Diagnosis of genes of susceptibility.
- Methodology in Molecular Pathology.

SKILLS

GENERAL SKILLS

- CG10 - Diseñar, aplicar y evaluar reactivos, métodos y técnicas analíticas clínicas, conociendo los fundamentos básicos de los análisis clínicos y las características y contenidos de los dictámenes de diagnóstico de laboratorio.
- CG11 - Evaluar los efectos toxicológicos de sustancias y diseñar y aplicar las pruebas y análisis correspondientes.

SUBJECT-SPECIFIC SKILLS

- CE47 - Conocer y comprender la estructura y función del cuerpo humano, así como los mecanismos generales de la enfermedad, alteraciones moleculares, estructurales y funcionales, expresión sindrómica y herramientas terapéuticas para restaurar la salud.

TRANSFERABLE SKILLS

- CT02 - Capacidad de utilizar con desenvoltura las TICs

LEARNING OUTCOMES

- Understanding the molecular basis of various types of diseases and susceptibility.
- Understanding the molecular basis of drug responses.
- Apply the methodology for the genetic diagnosis.

PLANNED LEARNING ACTIVITIES

THEORY SYLLABUS

- INTRODUCTION Sources of information. From clinical symptons to molecular pathology identification
- MOLECULAR BASES IN PATHOLOGY: Genotype-Phenotype correlations, Inheritance patterns, gene expression regulation and epigenetics
- MOLECULAR PATHOLOGY OF SELECTED HUMAN DISEASES (CASE REVIEWS) (to be selected according with students' interests).
- PRINCIPLES AND PRACTICE OF MOLECULAR PATHOLOGY: Molecular diagnostics. Gene and cell therapy. Pharmacogenomics

PRACTICAL SYLLABUS

- Determining the presence of polymorphism - 265TC (rs5082) in the APOA2 in genomic DNA gene

RECOMMENDED READING

ESSENTIAL READING

- Patología Molecular. A. Sánchez Pozo et al. Ed. Sintesis 2022.
- Essential Concepts in Molecular Pathology. W.B. Coleman and G.J. Tsongalis. Elsevier 2020
- Genetics and Genomics in Medicine. T. Strachan, J Goodship, P. Chinnery. Garland Science 2015

COMPLEMENTARY READING

RECOMMENDED LEARNING RESOURCES/TOOLS

- http://www.seqc.es/
- https://www.ncbi.nlm.nih.gov/pubmed/clinical
- http://www.omim.org/
- https://bioportal.bioontology.org/ontologies/DOID?p=classes&conceptid=http%3A%2F%2Fpurl.obolibrary.org%2Fobo%2FDOID_0081062
- https://www.uniprot.org/uniprot/P01308
- https://www.ncbi.nlm.nih.gov/clinvar/
- https://www.cophela.eu/campus/login/index.php?lang=en

TEACHING METHODS

- MD01 - Lección magistral/expositiva
- MD02 - Sesiones de discusión y debate
- MD04 - Prácticas de laboratorio y/o clínicas y/o oficinas de Farmacia
- MD07 - Seminarios
- MD10 - Realización de trabajos individuales
- MD12 - Tutorías
- MD13 - Participación en plataformas docentes

ASSESSMENT METHODS (Instruments, criteria and percentages)

ORDINARY EXAMINATION DIET

- Involvement and active participation in classes, forums and seminars (up to 5%).
- answers to short questions (class control) (up to 65%).
- Individual work (up to 10%): Will be evaluated by using a rubrica taking into consideration the clarity of the presentation, the relevance of the information given with regards to the relationship between symptoms, tests and treatments and the molecular pathology of the case and the references used.
- Laboratory performance (up to 20%). Individual/Collective work in the laboratory that is compulsory to obtain a final mark and will be evaluated by an exam.

All the above items have to obtain at less 5/10 points
Written tests (if necessary, or to increase marks). The tests will consist in a composition about one of the topics developed in class or short questions.

EXTRAORDINARY EXAMINATION DIET

There will be a unique exam that will include all the matters of the course or specific parts according with student situation

SINGLE FINAL ASSESSMENT (evaluación única final)

Only for students who have chosen this system and had been admitted to it during the first two weeks of teaching, will have to perform two tests:

- Theoretical examination of all the matters of the course and which consist of test questions and/or a composition.

- Practical examination in the laboratory. This test may be waived if the student had made practices and have overcome.
- The weight of both exams in the course grade will be 70% for theory and 30% practice.
- Teachers may make additional oral examinations whenever necessary to better weigh the score or any doubt about the authenticity of written exercises.

ADDITIONAL INFORMATION

- https://bbm2.ugr.es/