Teaching guide

IDENTIFICATION DETAILS

Degree:	Biotechnology
Field of Knowledge:	Science
Faculty/School:	Experimental Science
Course:	BASIC GENETICS
Type:	Compulsory
ECTS credits:	6
Year:	2
Code:	2022
Teaching period:	Third semester
Area:	Genetics
Module:	Biochemistry and Molecular Biology
Teaching type:	Classroom-based
Language:	Spanish
Total number of student study hours:	150

SUBJECT DESCRIPTION

Un óvulo fecundado por un espermatozoide sufrirá un proceso de desarrollo que lo transformará en un organismo adulto. Por tanto, el óvulo fecundado debe contener la información que especifique las características del organismo. A esta información la denominamos material genético y el estudio de la naturaleza, organización, expresión, transmisión y variación del material genético es el campo de trabajo de la Genética. La Biotecnología actual descansa en el progreso científico generado y experimentado por la Genética en los campos de la biología molecular, la tecnología del DNA recombinante y la genómica. Esta tecnología ha permitido identificar, modificar y transferir material genético entre organismos, con el fin de modificar "ad hoc" determinadas características de los seres vivos. Asimismo, el conocimiento de la variabilidad de los genomas individuales es la base del diagnóstico personalizado en patologías tan comunes como el cáncer o enfermedades cardiovasculares.
La Biotecnologia requiere profesionales con una formación integral, expertos en su área de conocimiento, y con un profundo conocimiento del sentido y fundamento de la dignidad humana, para buscar siempre la verdad y el bien,

al servicio de la sociedad y en defensa de los derechos del ser humano. En este camino, el alumno trabajará los contenidos a través de la búsqueda y análisis de la información, resolución de problemas y cuestiones y sesiones de laboratorio. El profesor servirá, fundamentalmente, como guía o tutor de estas actividades. El análisis genético no es sencillo, ni la interpretación de los datos y procesos moleculares tampoco; pero nada que verdaderamente merezca la pena lo es. El trabajo continuado de la asignatura permitirá a los alumnos adquirir los conocimientos, destrezas y actitudes necesarios, no solo para superar la asignatura, sino fundamentales en un universitario.

SKILLS

Basic Skills

Students must have demonstrated knowledge and understanding in an area of study that is founded on general secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience

Students must have developed the learning skills needed to undertake further study with a high degree of independence

General Skills

To have acquired the ability for analytical, synthetic, reflective, critical, theoretical and practical thought.

To develop an ability to search for, take in, analyse, sum up and relate information.

To be familiar with the basic principles and theories of human and experimental sciences.

To develop oral and written communication skills.

To acquire the skills needed for experimental work: design, preparation, the compilation of results and the obtainment of conclusions, understanding the limitations of an experimental approach.

Specific skills

To be familiar with and understand the fundamental principles of Mendelian genetics.

To be familiar with and describe the molecular mechanisms regulating DNA replication and repair, RNA

transcription and processing and mRNA translation.

To identify the structure and describe the nature, organisation and function of genetic material in molecular terms in eukaryotic and prokaryotic organisms.

To work suitably in a laboratory with biological material (bacteria, fungi, viruses, animal and plant cells, plants and animals) and with regard to the safety, handling and disposal of biological waste.

To organise and suitably plan work in the laboratory.

To be able to apply the theoretical knowledge acquired for solving problems and practical cases linked to the various subjects.

DISTRIBUTION OF WORK TIME

CLASSROOM-BASED ACTIVITY	INDEPENDENT STUDY/OUT-OF-CLASSROOM ACTIVITY
65 hours	85 hours