

IDENTIFICATION DETAILS

Degree:	Biotechnology		
Field of Knowledge:	Science		
Faculty/School:	Experimental Science		
Course:	RECOMBINANT DNA TECHNOLOGY		
Type:	Compulsory	ECTS credits:	6
Year:	3	Code:	2037
Teaching period:	Sixth semester		
Area:	Advanced Biotechnology Training Technologies		
Module:	Biotechnological Tools		
Teaching type:	Classroom-based		
Language:	Spanish		
Total number of student study hours:	150		

SUBJECT DESCRIPTION

Mediante técnicas de manipulación del DNA, un gen aislado se puede modificar y devolver a una célula bacteriana o a una célula germinal de un animal o planta de tal forma que llegue a ser parte funcional y heredable del genoma del organismo (ingeniería genética). Las técnicas de manipulación del DNA han supuesto un desarrollo exponencial en diferentes áreas, dando lugar a la biotecnología moderna para la producción de proteínas recombinantes y otros compuestos útiles a nivel industrial, así como, a la generación de animales y plantas transgénicos. A nivel clínico, la ingeniería genética permite la producción de fármacos recombinantes, avances en diagnóstico clínico, el desarrollo de terapias avanzadas y génica, y es una herramienta imprescindible en las ciencias forenses actuales.

La asignatura corresponde al módulo Herramientas Biotecnológicas, integrada dentro de la materia Tecnologías Avanzadas de Formación Biotecnológica. Esta asignatura permitirá al los alumnos obtener el conocimiento y dominio de las principales técnicas de ingeniería genética y les proporcionará la base necesaria para la

comprensión de otras asignaturas de la titulación como son la Genómica y Proteómica, Organismos Modificados Genéticamente, Agrobiotecnología y Microbiología Industrial.

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 be familiar with the applications of biotechnology in the healthcare, food, agrobiotechnological, environmental and chemical fields.

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

Capacity for problem-solving and decision-making.

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.

To acquire the molecular biology and biochemistry knowledge needed to develop biotechnological processes and products.

Specific skills

To define and be able to apply genetic engineering techniques to the study of the expression and genetic function in various systems, as well as the handling and modulation of gene expression.

To be able to describe, quantify, analyse and critically assess the results of experiments performed in the

laboratory.

To be able to approach a subject by means of rigorous, profound and comprehensive thought.

Capacity for written and oral communication of the knowledge acquired.

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
66 hours	84 hours