

IDENTIFICATION DETAILS

Degree:	Biotechnology		
Field of Knowledge:	Science		
Faculty/School:	Experimental Science		
Course:	BIOINFORMATICS		
Type:	Compulsory	ECTS credits:	6
Year:	3	Code:	2031
Teaching period:	Fifth semester		
Area:	Advanced Biotechnology Training Technologies		
Module:	Biotechnological Tools		
Teaching type:	Classroom-based		
Language:	Spanish		
Total number of student study hours:	150		

SUBJECT DESCRIPTION

Descripción de los fundamentos de la bioinformática (tanto a nivel computacional como biológico) y familiarización con las aplicaciones y servicios más frecuentes. Los avances realizados en biología molecular y otras áreas han generado un crecimiento exponencial de información de origen experimental. A través de la bioinformática, los avances en tecnologías de la información y comunicaciones han permitido afrontar dicho fenómeno ofreciendo nuevos sistemas de gestión y tratamiento de datos, como de herramientas de análisis que hacen posibles aproximaciones inaccesibles por otros medios. Esta asignatura pretende introducir a los alumnos en la bioinformática tanto a nivel práctico, mostrando el uso de herramientas y servicios (búsqueda y recuperación en bases de datos, comparación de secuencias, alineamientos, construcción de árboles filogenéticos, etc), como a nivel teórico, explicando fundamentos básicos de programación y las ideas en las que se basan las herramientas que van a utilizar.

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 acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

Capacity for teamwork and group management.

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

Capacity for problem-solving and decision-making.

To be able to plan time effectively.

To foster a concern for knowledge as a key tool in the personal and professional growth process of a student.

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 understand the fundamental laws and principles of physics, mathematics, chemistry and biology as the foundation for the mental structure of a biotechnician.

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 application of multidisciplinary techniques including concepts of protein chemistry, mass spectrometry, protein processing and handling, biostatistics and bioinformatics.

To apply bioinformatics to obtain information on sequence and structure comparisons, functional grouping, phylogenies, etc. of biomolecules.

To be familiar with and be able to apply new genomic techniques to the fields of medicine, biology, pharmaceuticals and agriculture.

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

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

To be able to work in a team in an efficient and coordinated manner.

To be able to assess the knowledge acquired.

DISTRIBUTION OF WORK TIME

CLASSROOM-BASED ACTIVITY	INDEPENDENT STUDY/OUT-OF-CLASSROOM ACTIVITY
60 hours	90 hours