COURSE DATA

DATA SUBJECT

Code: 33201
Name: Introduction to experimentation and information and communication technology
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1111 - Grado en Biotecnología	Facultat de Ciències Biològiques	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1111 - Grado en Biotecnología	Conocimientos y Técnicas Transversales	BASIC

COORDINATION

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SUMMARY

"**Incorporation to experimentation and to information and communication technologies**" is a basic and compulsory subject of the branch of Sciences, which is included in the Subject "Biology", within the Module "Transversal Knowledges and Techniques". It has a total of 6 ECTS credits that are taught throughout the first quarter of the first year of the Degree.

The subject, first of all, is aimed to facilitates the adaptation of the students to the academic, administrative, social and cultural environment of the University of Valencia, given its impact on academic performance. It is intended, then, to introduce the students in the research activity, through the acquisition of a series of skills and basic knowledge that allow them to function in the field of experimental sciences. Thus, throughout the course they will have to become familiar with the different sources of scientific information and with new technologies, they will learn how to function in a research laboratory as well as the rules for the use of basic scientific instruments, the handling of biological material and the legislation on experimental animals. In short, it is about acquiring the basic knowledge that will be used throughout the rest of the courses that make up the degree, both from the perspective of searching and preparing information, its presentation in different formats or the use of scientific English, up to knowing how to use different devices commonly used in the laboratory, handling experimental animals correctly or knowing how to dispose the waste according to its dangerousness. It is also intended that the students knows professional skills of Biotechnologists and Biotechnology as a profession.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

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Actuar con autonomía en el aprendizaje, tomando decisiones fundamentadas en diferentes contextos, emitiendo juicios en base a la experimentación y el análisis y transfiriendo el conocimiento a nuevas situaciones

Apply analytical, synthetic and critical thinking skills in the application of the scientific method.

Capacidad de análisis, síntesis y razonamiento crítico.

Capacidad de análisis crítico de textos científicos.

Capacidad de divulgación del conocimiento científico.

Colaborar eficazmente en equipos de trabajo, asumiendo responsabilidades y funciones de liderazgo y contribuyendo a la mejora y desarrollo colectivo

Compromiso ético en el manejo de animales para experimentación.

Conocer el manejo de la instrumentación científica básica propia del laboratorio de experimentación en biotecnología y biociencias moleculares

Conocer las normas básicas de seguridad en el laboratorio

Conocer las normas de seguridad e higiene en el laboratorio.

Conocer los elementos fundamentales de la comunicación y percepción pública de las innovaciones biotecnológicas y de los riesgos asociados a ellas

Conocer y comprender, desde el propio ámbito de la titulación, las desigualdades por razón de sexo y género en la sociedad; integrar las diferentes necesidades y preferencias por razón de sexo y de género en el diseño de soluciones y resolución de problemas

Contribuir en el diseño, desarrollo y ejecución de soluciones que den respuesta a demandas sociales, teniendo en cuenta como referente los Objetivos de Desarrollo Sostenible

Demostrar razonamiento crítico y autocrítico en el ámbito de la titulación, considerando aspectos tales como la ética profesional, los valores morales y las implicaciones sociales de las diferentes actividades realizadas

Develop the capacity for organisation and planning.

Habilidad para el trabajo en equipo.

Manejo del inglés científico.

Manejo de material para la experimentación en el laboratorio y en el campo.

Manejo de recursos informáticos de utilidad en Biotecnología.

Participate in multidisciplinary teams, engaging in teamwork and collaboration.

Presentación escrita y oral de datos científicos.

Propose creative and innovative solutions to complex situations or problems, typical of the area of ¿¿¿¿connection, to donate responses to the various professional and social needs

Que el estudiantado demuestre su capacidad para calcular correctamente los parámetros relevantes de un proceso o un experimento mediante la representación de los datos experimentales

Que el estudiantado demuestre su capacidad para utilizar las diferentes fuentes bibliográficas y bases de datos biológicos y usar las herramientas bioinformáticas

Saber comunicarse de manera efectiva, tanto de forma oral como escrita, adaptándose a las características de la situación y de la audiencia

Saber diferenciar y eliminar correctamente los distintos tipos de desechos químicos y biológicos

Ser capaz de analizar datos, eligiendo el método más adecuado y de llevar a cabo una evaluación e interpretación crítica de los resultados experimentales en sus diversas formas de expresión (tablas, gráficas, escalas)

Use English to write reports and to interpret information from protocols, manuals and databases.

Work in laboratories, including safety procedures, waste management and accurate activity logging.

DESCRIPTION OF CONTENTS

1. INCORPORATION TO THE GRADES AND TO THE UNIVERSITY

Structure of the University of Valencia. Structure of the degree. Postgraduate studies.

2. RESEARCH IN BIOTECHNOLOGY

Scientific study of biological systems. Biotechnology and -omic Sciences.

3. SAFETY IN THE LABORATORY

Safety in the laboratory. Waste management.

4. MANAGEMENT OF EXPERIMENTAL ANIMALS

Basic notions of animal testing manipulation. Legislation on animal testing.

5. EXPERIMENTAL LABORATORY

- - The instruments for the observation of biological samples.
- - Management of biological material.
- - Differentiation of microbial types.
- - Management of laboratory animals.
- - Processing of model animals.
- - Histological processing of biological samples.
- - Effect and activity of enzimes

6. INFORMATION AND COMMUNICATION TECHNOLOGIES

Sources of Bibliographic Information. Presentation of Scientific Information.

7. BIOTECHOLOGY AND DIVERSITY

Animal development. Diversity: crisis and conservation. Interaction between populations.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours

Theory	26,00
Laboratory	14,00
Computer classroom practice	6,00
Classroom practices	14,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	**Hours**
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	90,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

USE OF THE VIRTUAL CLASSROOM (http://aulavirtual.uv.es). The University of Valencia's Virtual Classroom platform will be used for all course activities. The basic tools used are:

- *Email*. The Virtual Classroom will allow for fluid communication between students and faculty. Faculty use this medium to inform students of any aspect related to the course. IMPORTANT: Only emails from the University of Valencia email account (alumni.uv.es) will be accepted.

- *News*. The news module will be used as a standard source of information. Students are immediately aware of any news that affects the teaching and learning activities of the course.

- *Resources*. The resources module will be the location where course materials will be available: schedules, reference sources, images, animations, thematic tutorials, practice manuals, etc.

- *Activities*. The activities module will be the starting point for various tasks: concept maps, classroom practices, seminars, etc. The exchange of materials between teachers and students is carried out through this module.

- *Questionnaires*. The questionnaire module will be used to answer the questionnaires proposed throughout the course. Students have a limited time to answer the questionnaires.

THEORY SESSIONS. Participatory classroom lessons for thematic sections 1, 2, 3, 4, and 7.

PRACTICE SESSIONS. Theoretical and practical laboratory lessons for thematic section 5.

Thematic section 6, called ICTs, is structured into face-to-face activities, problem-solving and computer sessions, and independent work activities.

EVALUATION

The following distribution of evaluation tests is proposed out of a maximum total of 100 points (50 POINTS MUST BE ACHIEVED TO PASS THE SUBJECT):

*** Theory and practical evaluation questionnaire (up to 60 points):**

A classroom-based questionnaire will be conducted with multiple-choice questions covering all sections of the theory and practical laboratory syllabus. Passing this questionnaire is required to pass the course. If the grade can be offset against the grade obtained in the activities, this may be achieved starting at *27 points*.

*** Evaluation of activities (up to 40 marks):**

In this section, all the activities which the student must complete, both in-person and offline, will be graded. Completion and submission of each activity is a prerequisite for this section to be graded. If the student does not pass the course in the first exam, the grade for this block of activities will be retained until the second exam of the same year.

- Writing a popular article - **10 points.**
- Bibliographic search and references - **10 points**.
- Summary and readings of popular articles - **7.5 points**.
- Lab practice notebook - **7.5 points**.
- Achievement and participation in Blocks I and II - **5 points**.

REFERENCES

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