COURSE DATA

DATA SUBJECT

Code: 33201
Name: Introduction to experimentation and information and communication technology
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

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

FALCO GARI JOSE VICENTE

SUMMARY

"**Introduction to experimentation and information and communication technology**" is a basic and compulsory subject of the Degree in Biotechnology. It belongs to the Module named "Transversal Knowledges and Techniques". This 6 ECTS credit subject is taught throughout the first quarter of the first Degree year.

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

1102 -

Capacidad de análisis, síntesis y razonamiento crítico.

Capacidad de análisis crítico de textos científicos.

Capacidad de divulgación del conocimiento científico.

Compromiso ético en el manejo de animales para experimentación.

Conocer las normas de seguridad e higiene en el laboratorio.

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.

Presentación escrita y oral de datos científicos.

1111 - Grado en Biotecnología

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.

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

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 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

Participate in multidisciplinary teams, engaging in teamwork and collaboration.

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 Degrees. Postgraduate studies.

2. RESEARCH IN BIOTECHNOLOGY.

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

3. SAFETY IN THE LABORATORY.

Safety in the laboratory. Chemical and organic waste management.

4. MANAGEMENT OF EXPERIMENTAL ANIMALS.

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

5. BIOTECHOLOGY AND DIVERSITY.

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

6. INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs).

Sources of Bibliographic Information. Quality and reliability of bibliographical sources. Presentation of Scientific Information.

7. EXPERIMENTAL LABORATORY,

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

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 is used for all course activities, allowing a fluid communication betwee students and teaching staff. The basic tools used are:

- Email. Teaching staff uses 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 is 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 is the location where course materials are available: schedules, reference sources, images, animations, thematic tutorials, practice manuals,...

- Questionnaires. The questionnaire module is used to answer the questionnaires proposed throughout the course.

THEORY SESSIONS. Expository lectures with a participatory focus. They are developed in the classroom and cover the thematic parts1, 2, 3, 4, and 5.

PRACTICAL SESSIONS. Experimental sessions and activities of practical work conducted in the laboratory. Correspond to the thematic part 7.

PROBLEM AND COMPUTER SESSIONS. Thematic part 6, focused on ICTs, is structured in classroom activities, combining problem-solving sessions (14 hours) and computer sessions (6 hours). These sessions focus on managing bibliographic resources and mastering scientific presentation formats.

EVALUATION

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

Theory and Practice Questionnaire (up to 60 points): A face-to-face questionnaire will be carried out in the classroom that will propose multiple-choice questions referring to all theory and laboratory practice parts. It is a necessary condition to pass this questionnaire with a minimum of

30 points to be able to pass the subject.

These parts of theory and practice are considered retrievable activities in the second call of the course.

Assessment of Problem and Computer activities (up to 40 points):

This section will assess all the activities of the subject, both face-to-face and non-face-to-face, that students must do in relation to the submission of exercises and documents on the topics covered in the problem and computer sessions.

These activities are considered non-recoverable and if the subject is not passed in the first exam, the grade for this section of activities will be kept until the second exam of the same year.

- Elaboration of an informative article - **10 points**.
- Bibliographic search and Bibliographic references - **10 points**.
- Summary and Readings of informative articles - **7.5 points**.
- Elaboration of experimental reports - **7.5 points**.
- Achievement and participation in blocks I and II - **5 points**.

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REFERENCES

Basic References

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Eliminación de residuos en el laboratorio: procedimientos generales.
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