VNIVERSITAT DE VALÈNCIA

Course Guide
33973 Plant and Animal Biology

COURSE DATA

DATA SUBJECT

Code: 33973
Name: Plant and Animal Biology
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Facultat de Farmácia i Ciències de L'alimentació	2	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	General biology	BASIC

COORDINATION

SECO CERVERA MARTA

CALVO OCHOA M CARMEN

SUMMARY

Plants' and Animals' Biology is a subject with a basic character, half-yearly that it is taken in the second year of the Degree in Food's Science and Technology. It has a total of 6 credits ECTS. Being a theory-experimental degree, the theory training (3,8 ECTS) is complemented by carrying out experiments in the laboratory (1,5 ECTS). These experiments include of the concept's practice and techniques learned before, making the student feel comfortable and familiarized with the scientific material and teamwork.

The Plants' and Animals' Biology together with General Biology, of first year, create an obligatory module of Biology. In "General Biology", the student acquires fundamental knowledge about the level of cellular organization from a living thing. Differences are studied morphological, structural and function between cell animal and vegetable. In the Plants' and Animals' Biology subject we go further in the study of the level of cellular organization in plants animal and organisms.

Vegetables, such as photosynthetic organisms are the main contribution of O2 to the atmosphere and the mainstay of the food chain. The human diet is based on plant and animal products that provide fiber, vitamins, proteins, fats. On the other hand, the plants, along with the animals, they are a source of valuable raw material for the food processing industry (starches, sugars, sweeteners, antioxidants, emulsifiers, colorings, flavorings). To put forward the technological approximations aimed, among others, in obtaining a better quality of raw materials is necessary contribute a basic knowledge of the running of plants and animals. In addition, is necessary for a Food's Science and Technology student, have knowledge of the plants' and animals' diversity.

For this reason the subject is organized into teaching units. There are two teaching units for both plants and animals. The first teaching unit, Form and Function. addresses general aspects, from an evolutionary point of view and functional, the animal and plant world that may be of interest to student of CTA. In a second teaching unit, exploring the diversity, it analyzes the distinctive features of the various taxa, highlighting that are sources of products used in the agri-food industry.

The fundamental objective is that the students get a coherent vision of plant and animal diversity acquiring key concepts to get to know the complexity of the worlds of animals and plant and its importance to the agri-food industry.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

It is highly recommended that apart from Biology, students have also studied mathematics, physics, and chemistry and having knowledge of the english language

COMPETENCES / LEARNING OUTCOMES

1103 - Degree in Food Science and Technology

Capacidad para transmitir ideas, analizar problemas y resolverlos con espíritu crítico, adquiriendo habilidades de trabajo en equipo y asumiendo el liderazgo cuando sea apropiado.

Know and understand the levels of organisation of plants and animals.

Know and understand the structure and function of plants and animals.

Know how to apply the scientific method and acquire skills for managing the main bibliographic sources.

Understand and interpret animal and plant diversity.

DESCRIPTION OF CONTENTS

1. PLANTS FORM AND FUNCTION

Topic 1. PLANT CONCEPT . Plants, fungi and brown algae in the tree of life. Whay studying the plants and fungi in CTA. Plant Biotechnology.
Topic 2. PLANT GROWTH AND DEVELOPMENT. Division and cell expansion. Morphogenesis and differentiation. Formation of the plant body. States of development. Plant hormones in the development.
Topic 3. PLANT PROPAGATION. Sexual and asexual propagation. Plant live cicles.
Topic 4. PLANT NUTRITION AND TRANSPORT. Absorption and transportation of the water and mineral salts. Transpiration. Synthesis and transport of primary and secondary metabolites.
Topic 5. THE PLANTS WITH THE ENVIRONMENT. Responses to the light, gravity, environmental stress. Plant hormones in the stress.

2. EXPLORING PLANT DIVERSITY.

Topic 6. PLANTS WITHOUT EMBRYO : red and green algae. General characteristics. Importance to the food industry.
Topic 7.PLANTS WITH EMBRYO (I): Bryophytes and Pteridophytes. General characteristics. Importance to the food industry.
Topic 8. PLANTS WITH EMBRYO (II). Gymnosperms and Angiosperms. General characteristics. Importance to the food industry.

3. ANIMALS FORM AND FUNCTION

Topic 9. CONCEPT of ANIMAL. Historia evolutiva Su importancia en CTA.
Topic 10. ANIMAL DEVELOPMENT. Body Plans: symmetry, cavities , segmentation. Tissues ,Organs and systems. Adaptations of the development of amniotes.
Topis 11. REGULATION OF THE INTERNAL ENVIRONMENT. Homeostasis mechanisms , thermoregulation, osmoregulation in aquatic and terrestrial animals. Excretory processes and excretion systems.
Topis 12. ANIMAL NUTRITION. Need to feed themselves. Stages of the food processing. Adaptations of the digestive system of vertebrates in the diet.
Topic 13. CIRCULATION AND EXCHANGE OF GASES . circulatory system. Circulación de los vertebrados. Respiratory surfaces , gills, tracheal systems, lungs. Breathing of amphibians, mammals and birds.
Topic 14. ANIMAL REPRODUCTION. Types. Cycles and reproductive patterns. Production and transport of gametes in the animals. Clonación of farm animals.

4. EXPLORING ANIMAL DIVERSTIY

Topic 15 Filo Poriferos. Filo Ctenóforos. Filo Cnidarios. Importance to the agri-food industry.
Topic 16. Filo Platelmintos. Filo Nematodos. Filo Anélidos. Importance to the agri-food industry.
Topic 17. Filo Moluscos. Filo Equinodermos. Filo Artrópodos. Importance to the agri-food industry.
Topic 18. Filo Cordados. Subfilo Vertebrados. Importance to the agri-food industry.

5. LABORATORY SESSIONS

1.- Learning On arthropods.
2.- Learning about invertebrates Not arthropods important for human food.
3.- Learning to plant form and function
4.- Learning to classify and multiply plants.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	38,00
Seminar	2,00
Laboratory	15,00
Total hours	**57,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	10,00
Independent study and work	35,00
Preparation of lessons	24,00
Preparation for assessment activities	15,00
Resolution of case studies	6,00
Total hours	**90,00**

TEACHING METHODOLOGY

Theory classes.

For theory classes lectures will be given, since this method allows the lecturer to give key concepts to

understanding the subject and recommend further detailed study. In some classes student participation will be used, both between students, and between students and lecturer.

Laboratory sessions.

In these classes students will be able to learn the practical applications of the knowledge gained in the theory classes.

Tutorials.

Tutorials will be carried out in small groups, where the teacher will direct students about everything related to the learning process, both in global and concrete terms, including the supervision of tasks.

Seminars.

In the seminars, students will present work previously proposed by their lecturer. Students should be able to summarize and present ideas both orally and using written summaries. Both the written preparation and the oral and written presentation must be carried out as a group (maximum four students) and all of them must participate in the presentation. After each seminar there will be a debate where the majority of the participation should be between students

During the activities, both theoretical and practical, examples of how the subject should be applied in relation to the Sustainable Development Goals (SDGs) will be given. The SDGs will also be taken into account in the proposals of topics for the coordinated seminars. This will provide students with knowledge, skills and motivation to understand and manage these SDGs, while promoting reflection and criticism.

EVALUATION

Continuous assessment activities, which in this subject are shown to be seminars/practices, tutorials and coordinated seminars, are COMPULSORY ATTENDANCE and, therefore, NON-RECOVERABLE, in accordance with the provisions of article 6.5 of the Assessment and Qualification Regulations. of the UV for Bachelor's and Master's degrees. In the event that, for justified reasons, you cannot attend any of these

activities, you must notify us sufficiently in advance. In this way, the person in charge of the subject will be able to assign the student a session in another group.

Evidence of copying or plagiarism in any of the assessable tasks will result in failure to pass the subject and in appropriate disciplinary action being taken. Please note that, in accordance with article 13. d) of the Statute of the University Student (RD 1791/2010, of 30 December), it is the duty of students to refrain from using or participating in dishonest means in assessment tests, assignments or university official documents.

In the event of fraudulent practices, the "Action Protocol for fraudulent practices at the University of Valencia" will be applied (ACGUV 123/2020):

https://www.uv.es/sgeneral/Protocols/C83sp.pdf

The knowledge acquired in the theoretical and practical clases will be evaluated. To be evaluated and to pass the subject, the student will have to attend the practical classes. If the pupil has registered for the first time in the subject, this requirement is extended also to the attendance to all the meeting tutorships.

The maximum qualification for each part (4.5 points), can be obtained by means of the accomplishment of a written exam that will consist of questions on the theoretical and practical classes.The questions may be test questions, short questions or development questions, related to different aspects of the subject.

TO PASS THE SUBJECT WILL BE NECESSARY TO OBTAIN AN SCORE HIGHER THAN TO 2,25 POINTS IN BOTH PARTS OF THE TEST (ANIMAL BIOLOGY AND VEGETAL BIOLOGY), AND THAT WITH THE SUM OF BOTH PARTS AND THE CONTRIBUTION OF THE COORDINATED SEMINAR, A QUALIFICATION HIGHER THAN 5 POINTS NEED TO OBTAINED.

Coordinated seminar: up to 1 point.

The content and the presentation (oral and written) of a Project will be evaluated.

First call: The students will attend a test of the subject contends at the end of the first four-month period. The students who do not attend the written theoretical-practical test, will appear as NO PRESENTADO in the official list.

The second call: If the student did not pass the subject in the first call, he can come to a second one. In it, the suspended part must be tested again. The score corresponding to the Coordinated Seminar and to the Laboratory practical classes, will be considered for the second call. The students who do not attend the written theoretical-practical test, will appear as NO PRESENTADO in the official list.

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- http://www.plantcell.org/site/teachingtools/teaching.xhtml http://5e.plantphys.net/index.php http://croptechnology.unl.edu/pages/