

Degree	Type	Year
2502445 Veterinary Medicine	OB	1

Contact

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

There are no official requirements but it is convenient for the student to review the contents related to high school biology.

Objectives and Contextualisation

It is a subject of the first year. It develops the scientific and technical aspects needed to improve the performance and quality of plant-based foods used in animal nutrition. Additionally, it will help to understand the mechanisms that affect training of prices, the operation of the markets and the commercialization of agricultural products.

The specific training objectives are:

- 1) Study the botanical and physiological characteristics and their relationship with the chemical composition and nutritional value of the main plant species with veterinary interest.
- 2) Give the main knowledge about the bases of agricultural production. Understand the plant-animal-medium relationship.
- 3) Know the main plant species used in animal feeding, their production objectives and the different ways of use.
- 4) Understand the functioning of the markets of agricultural products.

5) Know the political and economic framework in which the agricultural activity and the agri-food sector are developed.

Competences

- Analyse, synthesise and resolve problems and make decisions.
- Demonstrate knowledge and understanding of the aspects of organisation, finance and management in all fields of the veterinary profession.
- Demonstrate knowledge of the botanic and physiological characteristics and chemical composition of plant species of veterinary interest.
- Seek and manage information related with professional activity

Learning Outcomes

1. Analyse, synthesise and resolve problems and make decisions.
2. Distinguish the mechanisms involved in the formation of prices, market operations and the sale of agricultural products.
3. Explain the political and economic framework in which agricultural activity and the agrifood sector are developed.
4. Identify the relationship between plant production, chemical composition and nutritious value of the species used to feed animals.
5. Identify the toxic elements of plants and their relationship with nutritious value.
6. Seek and manage information related with professional activity
7. Use correct and suitable financial terminology.

Content

THEORETICAL LESSONS

SECTION I

Chapter 1. Agriculture and food production. Concept, origin and evolution of agriculture. Production systems. Climate and agriculture. Elements of climate: ombrothermic diagram. Agricultural adaptations to climatic conditions.

Chapter 2. The Soil. Soil formation and physical-chemical properties. Mineralization and humification. Clay-humic complex and cation exchange capacity. Soil organisms. Impacts of livestock farming on the soil. Regenerative livestock farming.

Chapter 3. Fertilization. Vegetal Nutrition. Essential elements. Absorption. Deficiencies and phytotoxicity. Fertilizers. Classification. Inorganic and organic fertilizers. Manure: Impact, management and use.

Chapter 4. Plant morphology, growth and development. Differential characteristics of the plant cell. The root, stem, leaves, flower, fruits and seeds. Cycles of development and usage.

SECTION II

Chapter 5. The Gramineae. Classification and morphology. Cycles of development. Importance of cereals in food. Structure of the grain and its chemical composition. Industrial processing and by-products of cereals.

Chapter 6. Winter cereals. Winter cereals. Utilization and nutritional value. Productive objectives.

Chapter 7. Summer cereals. Summer cereals. Utilization and nutritional value. Productive objectives.

Chapter 8. Forage grasses. Growth phases. Descriptive and cultivation characteristics of ryegrass and other forage grasses. Utilization and nutritional value. Productive objectives.

Chapter 9. Legumes. Classification and morphology. Cycles of development and fruiting. Fixation of atmospheric nitrogen. Importance and situation of its production at an international and national level. Structure and chemical composition. Toxic elements and quality.

Chapter 10. Pulses. The soybeans. Other pulses. Utilization and nutritional value. Productive objectives.

Chapter 11. Forage legumes. Descriptive and cultivation characteristics of alfalfa and other forage legumes. Utilization and nutritional value. Productive objectives

Chapter 12. Other crops of interest in animal feeding. Roots and tubers of forage interest. Other crops. Utilization and nutritional value. Productive objectives

Chapter 13. Forage conservation. Hay-making, dehydration, haylage, and silage. Factors that influence forage quality.

Chapter 14. Pastures. Pasture concept. Grazing objectives. Types of pastures: mountain pastures, mowing meadows, agricultural pastures, wastelands and fallows, steppes, savannahs, tundra, wooded pastures.

Chapter 15. Pasture - livestock relationship. Adaptation and tolerance: morphotype, compensatory processes, reproductive strategies, palatability. Defenses: mechanical, chemical and symbiotic. Escape: spatial and phenological.

SECTION III

Chapter 16. Introduction to the economy. Economy concept. The problem of resource allocation. The production-possibility frontier. Concepts: opportunity cost, efficiency, law of diminishing returns.

Chapter 17. Decision units. The factors of production. Delimitation and characteristics of agricultural markets. The market as an allocation mechanism.

Chapter 18. The demand. The demand function. Factors that affect the demand.

Chapter 19. The offer. The market offer. Factors that affect the offer. The elasticity of supply and demand.

Chapter 20. The market. The equilibrium price in a market of perfect competition. Displacements of demand and supply. Other forms of market.

Chapter 21. Applications of the theory of price I. The instability of prices and incomes in the agricultural sector. Price control and agriculture. The dynamics of the supply of agricultural products.

Chapter 22. Applications of the theory of price II. Effect of taxes and subsidies. The dynamics of the supply of agricultural products. Intervention in the agricultural sector.

SEMINARS

S1. Animal phytotherapy

S2. Chemical composition and nutritional value of vegetable products

S3. Alternative and crop rotation

S4. Pastoral value and stocking rate

S5. Production factors. The production-possibility frontier

S6. The functions of supply and demand and the equilibrium point of the market

S7. The elasticity of supply and demand

S8. Effects of the Intervention and the Common Agricultural Policy (CAP)

S9. The current global model of food production and food sovereignty

PRACTICAL LESSONS

P1. Bases of agricultural production of veterinary interest

P2. Recognition of plant foods and raw materials of plant origin by microscopy

P3. The production and its cost. The production function and the law of decreasing marginal returns

P4. Index, economic projections and macroeconomic table

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Practical lessons	19	0.76	1, 2, 5, 4
Seminars	12	0.48	1, 2, 3, 4, 7
Theoretical lessons	22	0.88	1, 2, 3, 5, 4, 7
Type: Autonomous			
Case study	12	0.48	1, 4
Preparation of reports	24	0.96	6, 2, 3, 5, 4, 7
Study and problem solving	59	2.36	1, 2, 3, 5, 4, 7

Several teaching-learning strategies will be combined in order to achieve the objectives of the course.

Theoretical lessons: The lectures will be the main type of activity and will be carried out in the classroom since basic concepts are transferred to students in a short time. The learning contents and concepts explained during the lectures require student's autonomous work in order to assimilate them.

Seminars: Sessions with a small number of students with double purposes. On the one hand, the scientific-technical knowledge exposed in the theoretical lessons will be applied in order to complete their comprehension by developing diverse activities: information analysis, problem solving, problem-based learning, etc. On the other hand, they are a forum to encourage the discussion between students. In addition, these sessions allow the teacher to monitor the student and make the student aware of their progress in the matter.

Practical lessons: The objective of the practical lessons is to complete, apply and reinforce the knowledge acquired in the theoretical lessons. During the lab sessions, students will work different materials (soils, seeds, flours and plants), performing different types of analysis and observations. At each session, the student will prepare a document that will be delivered to the teacher at the end of the practice.

Case study: The students will make a case of the Agronomy part. The students can solve a problem of a real situation. The mission of the case study is to promote the capacity for analysis, reasoning and solving problems.

Gamification: Games like crosswords, image recognition, relating words, etc. are resources used in theoretical and practical classes.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Case study	9 %	0	0	1, 6, 4
Exams	80 %	2	0.08	2, 3, 5, 4, 7
Practical lessons	7 %	0	0	1, 6, 2, 5
Seminars	4 %	0	0	1, 2, 7

Exams. The knowledge acquired by the student will be evaluated individually. There will be two partial tests, which can be passed if a score is ≥ 4.5 . This evaluation has a weight on the final grade of 80 %, distributed in 50 % the first partial (Agronomy) and 30 % the second partial (Agricultural Economics).

Agronomy practical lessons. The practical sessions are compulsory, evaluating both the student's attendance and his attitude. During the practical sessions, the student will prepare a document of each practice. These practical lessons will worth 7 % of the final grade.

Practical case of Agronomy. The capacity for synthesis and coherence in the discussion of results will be assessed. It will have a value of 9 % of the final grade.

Agronomy seminars. The acquired knowledge during the seminars will be evaluated in the partial exams and with a specific test that will worth 3 % of the final grade.

Seminars and practices of Agricultural Economy in computer classroom. The attendance and participation of the student will worth 1% of the final grade, as long as the attendance is not less than 5 sessions.

To pass the course, it is necessary to obtain a global average score ≥ 5 , taking into account to the score weights previously indicated and the attendance of the practical sessions.

A Student will be considered as 'non-evaluable' only if not attending to any of the evaluation activities.

Repeater students will not need to repeat the lab sessions and the self-learning activity if they have already been approved.

SINGLE ASSESSMENT

Exams. The single assessment will consist of a single summary test in which the contents of the subject program will be evaluated. The test will consist of test-type questions (single-answer multiplechoice and T/F).

The exam will have two distinct parts (Agronomy and Agricultural Economics) and will have a weight on the final grade of 84 % (distributed in 53 % Agronomy and 31 % Agricultural Economics). To pass the exam, a minimum of a score of 4.5/10 must be obtained in each of the parts.

The exam will take place coinciding with the date set of the second partial and the same recovery system will be applied as for the continuous evaluation.

Practical and case. The practical sessions are compulsory and will be evaluated individually. The practical reports and the practical case will be delivered on the same day and time of the single test. It will have a value of 16 % of the final grade (distributed in 7 % practical lessons and 9 % practical case).

To pass the course, it is necessary to obtain a global average score ≥ 5 , taking into account to the score weights previously indicated and the attendance of the practical sessions.

Bibliography

(Female authors are shown with their surnames in bold and underlined)

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Web links

- + FAO (Food and Agriculture Organization): <http://www.fao.org/>
- + CE (European Commission): https://ec.europa.eu/info/food-farming-fisheries_es
- + MAPA (Ministerio de Agricultura, Pesca y Alimentación): <http://www.mapa.gob.es/>
- + DACC (Departament d'Acció Climàtica i Agenda Rural): <http://www20.gencat.cat/portal/site/DAR/>
- + Servei meteorològic de Catalunya: <https://www.meteo.cat/>
- + Agricultural information: <http://www.infoagro.com/>

Software

Microsoft Office and Microsoft Teams

Language list

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan/Spanish	first semester	morning-mixed
(PAUL) Classroom practices	2	Catalan/Spanish	first semester	morning-mixed
(PAUL) Classroom practices	3	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	1	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	2	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	3	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	4	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	5	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	6	Catalan/Spanish	first semester	morning-mixed
(PLAB) Practical laboratories	7	Catalan/Spanish	first semester	morning-mixed
(TE) Theory	1	Catalan/Spanish	first semester	morning-mixed
(TE) Theory	2	Catalan/Spanish	first semester	morning-mixed