Integrated Animal Production II

Code: 102624
ECTS Credits: 5

2025/2026

Degree	Type	Year
Veterinary Medicine	OB	3

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

There are no established official prerequisites, but the student must use the knowledge acquired in Bases of Animal Production and Management, Ethnology and Ethology, Agronomy and Agricultural Economics, Integrated Animal Production 1 and Animal Nutrition.

Basic knowledge of Excel is required. If you do not have basic knowledge, it is recommended to do self-study beforehand using online resources.

Objectives and Contextualisation

The training objectives of Integrated Animal Production II are:

- To know the importance of food production in the world and the new
- To know the needs and the impact of the facilities and the environm
- To know the determining factors of the relationship between animal

• To know the key factors of the organization and operation of the agri
• To quantify the costs and indicators of economic profitability of the c
This subject participates in the Pilot Test of Teaching in English that is ca

(demonstrate knowledge of English to communicate orally and in writing in academic and professional contexts).

Competences

- Analyse, synthesise and resolve problems and make decisions.
- Demonstrate knowledge and understanding of structural and functional disorders of the animal organism.
- Demonstrate knowledge and understanding of the aspects of organisation, finance and management in all fields of the veterinary profession.
- Handle the correct protocols and technologies used to modify and optimise different animal production systems.
- Properly evaluate the nutritional status of animals and know how to advise others on breeding and feeding principles.

Learning Outcomes

1. Analyse, synthesise and resolve problems and make decisions.
2. Apply physiological knowledge to production objectives.
3. Describe the basic principles of pasture and animal fodder.
4. Evaluate feeding programs: Know how to assess the main methods of animal fodder preparation, conservation and administration.
5. Evaluate the quality of products of animal origin.
6. Evaluate the technical and economic indexes of a farm: recognise problems and offer solutions.
7. Formulate rations for animals in the most conventional situations.
8. Identify and evaluate the factors that affect the production of products of animal origin.
9. Identify cost calculation systems, the different entries and their practical uses.
10. Identify the different stages of livestock production cycles.
11. Identify the different types of business organisation.
12. Identify the production systems of different domestic species, integrating physiological and economic knowledge.
13. Locate and identify the main producers of foodstuffs of animal origin, as well as their economic dimension.
14. Recognise the basic characteristics of the different stages of livestock production cycles and how they function.
15. Use correct and suitable financial terminology.
16. Use current feeding systems: Know how to obtain the nutritious value of foodstuffs and calculate animals' nutrition requirements.

Content

THEORY (26 h)

INTRODUCTION:

The role of animal products in human nutrition:

The role of animal products in the omnivorous diet. Differential nutritional profile of products of animal origin. Impact of the consumption of products of animal origin on health. Recommendations.

Needs, production and production forecasts of food of animal origin in the world:

Importance of animal production in the world. Characteristics of European livestock farming. The role of livestock in the Sustainable Development Goals. New livestock paradigms.

CHALLENGES FOR LIVESTOCK PRODUCTION IN THE 21ST CENTURY

Economic and social sustainability of animal production

The organisation of the agricultural enterprise as an economic unit of production. The management of economic resources. Profit and loss account and profitability. Financing in agricultural holdings. Investment evaluation and selection methods. Livestock activity and its contribution to the social dimension of sustainability.

Environmental sustainability of animal production

Interaction between animal production and the environment from the point of view of the Agenda 2030 Sustainable Development Goals and Environmental Footprints. How official data is assessed and interpreted, and strategies to make livestock production an ally for a more sustainable environment. In particular SDG13-Climate action, carbon footprint and nitrogen footprint.

IMPROVEMENTS OF THE PRODUCTIVE PROCESS

Improvementof animal welfare from facilities and management

Environment and facility needs in animal production, welfare and health. Evaluation of the indicators of comfort and animal welfare. Environmental comfort. Productive and economic impact of facilities and well-being.

Hygiene in livestock production

Good hygiene practices in the production process from the "one health" perspective. Basic principles in relation to facilities, personnel, waste, veterinary treatments and particularly feed with analysis of the main hazards and strategies for control and prevention.

Application of new technologies in animal production (Precision Livestock Farming, PLF)

New technologies for precision livestock farming. Potential impact on productivity, health, welfare, environment and herd management. What is precision livestock farming? How and when will it be implemented? How can digitalisation help us to improve the production process? What challenges do farmers and veterinarians face at farm level when working with the digitalisation of livestock farming?. To delve into some examples of technology and digitisation most commonly implemented in poultry, pig and ruminant farming. And explore more experimental methodologies with potential for future implementation.

PRACTICES (18 h)

Computer room

- Costs and profitability of agricultural enterprises (PAI1)
- Financial evaluation of agricultural investments (PAI2)
- Manure Management: The Case of Nitrogen (PAI3)
- Calculation of animal waste (slurry and nitrogen) in cattle (PAI4)
- Carbon Footprint in Dairy Cattle. Integrated Farm System Model (PAI5)

Classroom

- Animal production and sustainability (PAUL) (SPA1)
- Results and discussion. Purins Management: The case of Nitrogen (Seminar) (SPA2)
- Results and discussion. PC work in a dairy cattle farm (Seminar) (SPA3)
- Results and discussion. Welfare assessment protocol in sheep (PAUL) (SPA4)

Farm

- Animal welfare assessment protocol.

SELF-TEACHING

- Costs and profitability of a pig farm (A1)
- Case study, Nitrogen balance of a pig farm (A2)
- Case study, carbon footprint in dairy cattle (A3)

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Computer classroom practices	10.5	0.42	7, 16
Farm practice	2	0.08	2
Master classes	26	1.04	2, 4, 3, 11, 9, 12, 8, 10, 13, 14, 15, 5
Seminars	5.5	0.22	11, 9, 15
Type: Autonomous			
Self-learning work	26	1.04	1, 2, 6, 4, 7, 11, 9, 16, 15
study	53	2.12	2, 3, 11, 9, 12, 8, 10, 13, 14, 15, 5

The center of the learning process is the student's work. The student learns by working, while the mission of the teaching staff will be to help students in this task (1) by providing information or showing them the sources where information can be obtained and (2) directing students steps so that the learning process can be carried out effectively.

In line with these ideas, and in accordance with the objectives of the subject, the development of the course is based on the following activities:

1. Master classes:

The student acquires the knowledge of the subject by attending the master classes and complementing them with personal study of the topics explained. The master classes are conceived as a fundamentally one-way method of transmitting knowledge from the teacher to the student, but it stimulates the expansion of information through the provision of bibliographic references and Internet addresses.

2. Practical training:

There will be several practices with different environments: farm, and computer applications. Each of them will be used to raise awareness of a specific concept of Animal Production and allows working in different environments. Some of these practices will be related to the self-study work that must be done.

3. Seminars:

The seminars will allow the presentation and discussion of some aspects not covered in the master classes, and will have a format that allows interaction between students.

4. Self-learning work:

The student must solve the practical cases and rations proposed in each of the blocks (economic sustainability, environmental sustainability, well-being, hygiene in the production process and application of technology to animal production).

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

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam	60%	2	0.08	1, 6, 11, 9, 8, 13, 14, 16, 15, 5
Resolution of cases	32%	0	0	1, 6, 7, 11, 9, 12, 16, 15
Workshops/seminars	8%	0	0	1, 2, 6, 4, 3, 11, 9, 10, 14, 15

Continuous Assessment

The evaluation of the subject will be done as follows:

- Assessment of the theoretical and practical contents. There will be two written tests. The total weight of these tests on the final grade will be 60%, distributed 35% the first and 25% the second.

- The self-learning works associated to the practicals will have the following weight:

- A1: Costs and profitability of a pig farm (12%)
- A2: Case study, farm nitrogen balance in a pig farm (10%)
- A3: Case study, carbon footprint in a dairy farm (10%)

- The activities proposed in some of the practicals (calculation of droppings in cattle; PAI3) and on-farm (sheep welfare assessment protocol; PG) will have a weight of 3% and 5% respectively.

The self-learning works are associated with different practical sessions and seminars:

- To present the A1 self-learning work, attendance to the PAI1 practice will be mandatory.
- To present the A2 self-learing work, attendance to the PAI4 practice and the SPA2 seminar will be mandatory.
- To present the A3 self-learning work, attendance to the PAI5 practice and the SPA3 seminar will be mandatory.

For this course, the use of Artificial Intelligence (AI) technologies is permitted exclusively for bibliographic or information searches, text correction, or translations. The student must clearly identify which parts have been generated using this technology, specify the tools used, and include a critical reflection on how these tools

have influenced the process and the final outcome of the activity. Failure to disclose the use of AI in this graded activity will be considered a breach of academic integrity and may result in partial or full penalties on the activity's grade, or more severe sanctions in serious cases.

To pass the subject it is required:

- To obtain a grade $\geq$ 4.0/10.0 in each of the two written tests and a minimum of 4.5/10 in the average of both (weighted according to its proportional weight).

- To solve, at least two of the three self-learning activities (A1, A2, A3).

- To achieve with the set of all evaluation activities, a final grade equal to or greater than 5.

At the end of the semester there will be a second-chance exam.

The student who does not take any written test will be considered non-evaluable.

Attendance at practices and seminars, as well as marks of associated written works may be kept for 1 year.

Single assessment

The evaluation of the subject will be done as follows:

- Assesment of the theoretical and practical contents. There will be a single written test that will represent 60% of the final grade. The exam will be in the same call of the second writent test of the continuous assesment.

- Associated with the practicals and seminars (A1, A2 and A3) the students must carry out an individual work in order to guarantee their self-learning. The written works (three in total) must be delivered on the same day of the final test of the single assessment. The relative weight of each work in the final grade will be the same as for the continuous assesment (A1: 12%; A2: 10 %; A3 10 %).

- In relation to the PAI3 computer classroom practice (calculation of droppings in cattle) and the PG farm practice (sheep welfare evaluation protocol), students must fill out an individual questionnaire that will be delivered on the same day of the final single evaluation test. The weight of these questionnaires in the final grade will be 3 and 5% respectively. In order to complete the farm practice questionnaire (PG), attendance to the practicals is considered essential and therefore mandatory to obtain an evaluation for this activity.

To pass the subject it is required:

- Obtain a minimum of 4.5/10 in the grade of the only written test.

- Solve, at least two of the three cases of self-learning raised.

- Achieve with the set of all evaluation activities, a final grade equal to or greater than 5.

At the end of the semester there will be a second-chance exam. The call will be the same day as for continuous evaluation.

The student who does not take the written test will be considered non-evaluable.

Attendance at practices and seminars, as well as marks of associated writtenworks may be kept for 1 year.

Bibliography

Environmental Management

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- The International Dairy Federation (FIL/IDF) website: https://fil-idf.org/

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Economy

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Animal Welfare

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https://www.oie.int/en/animal-welfare/animal-welfare-at-a-glance/

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http://www.welfarequalitynetwork.net/en-us/reports/assessment-protocols/

HYGIENE OF THE FOOD PRODUCTION PROCESS

Animal Feed Contamination Effects on Livestock and Food Safety. Editor(s): Johanna Fink-Gremmels.. 2012, Woodhead Publishing Limited. (ISBN: 9780857093615)

Integrated food safety and veterinary public health. Editor(s): Buncic, S. 2006 CABI (H ISBN 9780851999081)

Journals
Animal
British Poultry Science
INRA Productions Animales
Journal of Animal Science
Journal of Dairy Research
Journal of Dairy Science
Meat Science
Mundo Ganadero
Producción Animal
Poultry Science

WEBS
www.agrodigital.com
www.mapya.es
www.ruralcat.net

Software

Granja Virtual 3.0 (www.granjadevacas.es / www.granjadevaques.es; Servei de Nutrició i Benesar Animal, Universitat Autònoma de Barcelona)

Integrated Farm System Management (IFSM), USDA, University Park, Pennsylvania, US.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan/Spanish	second semester	morning-mixed
(PAUL) Classroom practices	2	Catalan/Spanish	second semester	morning-mixed
(PAUL) Classroom practices	3	Catalan/Spanish	second semester	morning-mixed
(SEM) Seminars	1	Catalan/Spanish	second semester	morning-mixed
(SEM) Seminars	2	Catalan/Spanish	second semester	morning-mixed
(SEM) Seminars	3	Catalan/Spanish	second semester	morning-mixed
(SEM) Seminars	4	Catalan/Spanish	second semester	morning-mixed
(SEM) Seminars	5	Catalan/Spanish	second semester	morning-mixed
(SEM) Seminars	6	Catalan/Spanish	second semester	morning-mixed
(TE) Theory	1	Catalan/Spanish	second semester	afternoon
(TE) Theory	2	Catalan/Spanish	second semester	afternoon