



# DEGREE CURRICULUM **PIG PRODUCTION**

Coordination: ÁLVAREZ RODRÍGUEZ, JAVIER

Academic year 2020-21

## Subject's general information

<b>Subject name</b>	PIG PRODUCTION			
<b>Code</b>	102555			
<b>Semester</b>	2nd Q(SEMESTER) CONTINUED EVALUATION			
<b>Typology</b>	Degree	Course	Character	Modality
	Bachelor's Degree in Agricultural and Food Engineering	3	COMPULSORY	Attendance-based
<b>Course number of credits (ECTS)</b>	6			
<b>Type of activity, credits, and groups</b>	<b>Activity type</b>	PRAULA		TEORIA
	<b>Number of credits</b>	3		3
	<b>Number of groups</b>	1		1
<b>Coordination</b>	ÁLVAREZ RODRÍGUEZ, JAVIER			
<b>Department</b>	ANIMAL HUSBANDRY			
<b>Teaching load distribution between lectures and independent student work</b>	Horas presenciales: 60 Horas no presenciales: 90			
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.			
<b>Language</b>	English:100%			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PELEGRIN VALLS, JONATHAN	jonathan.pelegrin@udl.cat	1	
ÁLVAREZ RODRÍGUEZ, JAVIER	javier.alvarez@udl.cat	6,2	

## Learning objectives

This course belongs to the third year of the Degree in Agriculture and Food Engineering. The student will carry out an integrated approach to earlier knowledge in animal science (2nd year course on introductory animal science) to swine farming.

### Objectives and learning outcomes

- Understand the importance and characteristics of the different swine breeds and crossbreds.
- Apply the physiological basis and the guidelines of handling of the animals in each production phase.
- Apply nutritional and housing requirements according to physiological phase and genetics.
- Analyze the feed formulation and design of nutritional strategies to improve carcass and meat quality.
- Design and planning of swine farms.
- Evaluate the environmental and welfare requirements of the animals.
- Assess the technical, economic and social implications released by the different swine production systems.

## Competences

### General scope

At least the following core competencies shall be ensured:

CG1: Students have demonstrated to possess and to understand knowledge from the base of the general secondary education to a level that, although it relies on advanced textbooks, also includes some aspects that imply knowledge from the vanguard of that area.

CG2: Students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and presentation of arguments and problem solving within their area of study.

CG3: Students have the ability to gather and interpret relevant data to make judgments that include a reflection on relevant social, scientific or ethical issues.

CG4: Students can transmit information, ideas, problems and solutions to a specialized and non-specialized audience.

CG5: Students have developed learning skills necessary to undertake further studies with a high degree of autonomy.

In addition, the graduate must be able to:

CG6: Analyse specific situations, define problems, make decisions and implement action plans to solve them.

CG9: Use the existing computer and communication tools as support for the development of their professional activity (strategic scope of the University of Lleida).

CG11: Understand and express yourself with the appropriate terminology.

CG12: Present oral and written information (strategic scope of the University of Lleida).

### Specific scope

The graduate in Agricultural and Food Engineering will have acquired the following knowledge and skills after completing his/her studies:

EAEC 1. Animal husbandry. Animal physiology. Animal production systems. Animal welfare. Animal genetics and breeding.

EAEC3. Animal housing engineering. Facilities to ensure animal health and welfare.

## Subject contents

# PIG PRODUCTION 2020-21

**Lesson 1. Production context.** Pig farming in the world, European Union, Spain and Catalonia. Swine breeds and husbandry systems. Types of swine production enterprises. Selecting breeding stock and sires.

**Lesson 2. Reproduction management.** Swine handling. Breeding sow and boar management. Breeding systems. Farrowing management. Processing Procedures for neonatal piglets.

**Lesson 3. Nutrition.** Nutrient assessment. Feed mixing strategies. Nursery pig nutrition. Finishing nutrition. Pregnant and lactating sow nutrition.

**Lesson 4. Carcass and meat quality.** Transportation and slaughter procedure. Killing-out proportion and carcass grading systems. Wholesale cuts. Factors affecting carcass and meat value. Assessment of basic technological pork meat attributes.

**Lesson 5. Swine housing requirements.** Minimum standards for the protection of pigs (European Union regulations). Swine production equipment. Managing manure from swine operations. Mortality management. Best available techniques reference document (BREF).

**Lesson 6.** Technical performance herd data. Case studies in sow farms and finishing farms. Benchmarking. Cost of production assessment.

## Practice activity

- Discussion of the pig farming sector statistical portrait by Eurostat: Main statistical findings, Structure of the swine farms, Components of the pig herd, Changes and trends, Production of pork meat, Market prices (2 hours).
- Case scenario from a farm stud. Semen evaluation and breeding dose elaboration (2 hours).
- Least cost feed formulation by linear programming through Winfeed software. Case scenarios in sows and growing pigs (4 hours).
- Case studies to drive societal issues of pig production (2 hours).
- On-farm factors affecting dry-cured ham production (2 hours).
- Dry-cured ham sensory training (1 hour).
- Field trips to analyse sow and growing-finishing pig farms, and industrial processing technologies for death animal and slaughterhouse by-products (9 hours).
- Design of swine farms. Batch constraints and accommodation requirements (4 hours).
- Environmental compliance. Case study from farm visits (2 hours).
- Calculation and analysis of technical performance data (2 hours).

## Methodology

### Learning activities

Type	Description	Attending time	Homework time	Total	
		Hours	Hours	Hours	ECTS
Lecture	Flipped classroom, case study	30	50	80	3,0
Practice assignments	Seminar, computer tools, problem-based learning, oral discussion	30	40	70	3,0
<b>TOTAL</b>		<b>60</b>	<b>90</b>	<b>150</b>	<b>6</b>

Each ECTS credit equals to 25 hours.

## Development plan

All sessions will be held in person, virtually or semi-in person according to the recommendations, regulations or restrictions of the health authorities.

## Evaluation

### Type of activity

	%	
exam 1 (minimum mark: 3.5 out of 5) (including on-farm industry tours questions)	30	60% score
exam 2 (minimum mark: 3.5 out of 5) (including on-farm industry tours questions)	30	
flipped classroom questionnaires	10	
case study group work report	20	40% score

## Observations

The evaluation will be passed when the overall mark of the exams is over 5/10 (with a minimum mark of 3.5 in a given activity). The course will be taught and assessed in English. If the students follow the continuous evaluation system, there won't be a second-chance examination.

## Bibliography

### Coursebook

[www.marvin.udl.cat/produccionporcina](http://www.marvin.udl.cat/produccionporcina)

McGlone, J., Pond, W., 2003. Pig Production. Biological principles and applications. Ed. Thomson, USA.

### Basic references

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- Babot, D. (Ed.), 2008. La gestión técnica de las explotaciones porcinas en Spain. Ed. Ministerio de Medio Ambiente, Rural y Marino, Spain.
- Buxadé, C., Daza, A. (Eds.), 2001. Porcino Ibérico: Aspectos Claves. Ed. Mundi-Prensa, Spain.
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- Buxadé, C., Sánchez, R., 2008. El verraco: Claves de su optimización productiva. Ed. Euroganadería, Spain.
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### Complementary references

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- Blair, R., 2007. Nutrition and feeding of organic pigs. Ed. CABI, CAB International, United Kingdom.
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**Printed news magazines regarding swine production:**

Albéitar, Ed. Asisvet, Spain.

ANAPORC, Ed. Asociación Nacional de Porcinocultura Científica, Spain

Avances en tecnología porcina, Ed. Prodiva S.A., Spain

Ganadería, Ed. Agrícola, Spain

Mundo Ganadero, Ed. Eumedia, Spain

Suis, Ed. Servet, Spain

Pig Progress, Ed. Reed Business Information, The Netherlands