COURSE DESCRIPTION

COURSE DETAILS

Title (of the course): **MEJORA DE LA CALIDAD DE LOS ALIMENTOS DE ORIGEN ANIMAL MEDIANTE METODOLOGÍAS GENÉTICAS**

Code: 102255

Degree/Master: **GRADO DE CIENCIA Y TECNOLOGÍA DE LOS ALIMENTOS** Year: 4

Name of the module to which it belongs: OPTATIVIDAD / RECONOCIMIENTO

Field: OPTATIVIDAD

Character: OPTATIVA

Duration:

ECTS Credits: 3.0

Classroom hours: 30

Face-to-face classroom percentage: 40.0%

Study hours: 45

Online platform:

LECTURER INFORMATION

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PREREQUISITES AND RECOMMENDATIONS

Prerequisites established in the study plan

None

Recommendations

None

INTENDED LEARNING OUTCOMES

CB2

CE3

CE6

CT12

CT7

COURSE DESCRIPTION

OBJECTIVES

Animal genetics encompasses a series of technologies which, in the field of Food Science and Technology, aim not only to increase the quality and quantity of the traits under selection but also to improve their technological and sanitary characteristics, thus being considered an improvement of the raw materials at origin (organoleptic, nutritional and sanitary characteristics and their suitability for the technological processes to which they will be subjected).
The objectives of this subject are therefore:
1.- To know and understand the genetic nature of the productive characteristics.
2.- To know the possibilities offered by current genetic methodologies (classical genetic improvement and molecular genetics, genomics and transgenesis).
3.- To know how to apply the above knowledge to obtain food of animal origin of better organoleptic, bromatological and sanitary quality.

CONTENT

1. Theory contents

The course is structured in three thematic sections, the first one "Bases of Animal Breeding", includes 3 topics dedicated to introducing the student to the basic concepts and the different methodologies currently existing for the genetic improvement of animal productions, both in quantity and quality and their properties for the processing industry. The second section (topics 4 to 7), deals with the genetics of the main animal productions and the technology of their improvement. Finally, the last section, consisting of one topic, analyses the new genetic methodologies and the new challenges that are being faced in this field.

SECTION 1. MODULE ON THE BASIS OF ANIMAL GENETIC IMPROVEMENT
1: Genetics applied to animal breeding. Genetic improvement in the field of Food Science and Technology.
2: Quantitative genetics. Selection methods.
3: Molecular Genetics.

SECTION 2. GENETICS OF THE MAIN ANIMAL PRODUCTIONS.
4: Genetics of ruminant milk production.
5: Genetics of meat production in ruminants.
6: Genes related to meat quality in pigs.
7: Genes related to the quality of other animal productions.

SECTION 3. NEW GENETIC TECHNOLOGIES FOR THE IMPROVEMENT OF AGRI-FOOD QUALITY
8: Biotechnology and breeding. Genetic engineering.

2. Practical contents

Laboratory practices:
1.- DNA extraction from biological materials and products of animal origin.
2.- Determination of the species in meat products by genetic analysis. Detection of the polymorphism of genes related to the quality of products of animal origin.
Bioinformatic practice:
3.- Simulation of a genetic evaluation.

COURSE DESCRIPTION

SUSTAINABLE DEVELOPMENT GOALS RELATED TO THE CONTENT

Zero hunger
Good health and well-being
Decent work and economic growth
Responsible consumption and production

METHODOLOGY

General clarifications on the methodology (optional)

None

Methodological adaptations for part-time students and students with disabilities and special educational needs

The final grade will take into account the particular considerations of the students who take the Part-Time Degree, and if applicable, the special educational needs.

Face-to-face activities

Activity	Large group	Small group	Total
Assessment activities	2	-	2
Debates	-	2	2
Lab practice	-	11	11
Lectures	15	-	15
Total hours:	***17***	***13***	***30***

Off-site activities

Activity	Total
Group work	5
Information search	5
Reference search	5
Self-study	30
Total hours	***45***

WORK MATERIALS FOR STUDENTS

Case studies
Oral presentations
Placement booklet
References

COURSE DESCRIPTION

EVALUATION

Intended learning	Debate	Exams	Laboratory Practice
CB2	X		
CE3		X	
CE6		X	X
CT12		X	
CT7	X		
Total (100%)	***10%***	***60%***	***30%***
Minimum grade	***4***	***4***	***4***

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

Attendance will be assessed?:

No

General clarifications on instruments for evaluation:

The final grade will result from the evaluation of the different parts of the course:
- Debating skills (10% of the final mark). The mark obtained in the debate activity will only be valid for the 2023-24 course.
- A written exam including questions on all theoretical parts of the course with true/false or multiple choice questions (60% of the final mark). The mark obtained in the exam will only be valid for the 2023-24 course.
- A practical note in which the attendance and resolution of a true/false questionnaire will be taken into account, which will account for 30% of the final mark. Repeating students who have passed the practices in previous years will not have to repeat them. The mark they obtained when they passed them will be kept.

Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

The final grade will take into account the particular considerations of students who take the degree on a part-time basis, as well as for students with special needs.

Clarifications on the evaluation of the extraordinary call and extra-ordinary call for completion studies:

Those students who have not passed the course in the ordinary evaluation will be evaluated in the extraordinary call/s of the theoretical contents, exercises and/or practical, maintaining for this extraordinary call, and also for the following course (in case of repeating the course), the grade of pass or higher, obtained in the laboratory practices.
In conformity with the modification of the Official Academic Calendar for the academic year 2022-2023 (approved by the Governing Council, in the ordinary session of December 22, 2022; BOUCO 2022/01289 of 28/12/2022), the extraordinary convocation for students of 2nd enrollment or higher (first of the academic year 2023-2024) is transformed into the extraordinary convocation of September (last of the academic year 2022-2023).

COURSE DESCRIPTION

Qualifying criteria for obtaining honors:

With a final grade equal to or higher than 9, and a maximum number of 5% of those enrolled in this course.

BIBLIOGRAPHY

1. Basic Bibliography

Material available on the moodle site of the course

2. Further reading

Material available on the moodle site of the course

COORDINATION CRITERIA

Common evaluation criteria

SCHEDULE

Period	Assessment activities	Debates	Lab practice	Lectures
1# Week	0,0	0,0	0,0	2,0
2# Week	0,0	0,0	0,0	2,0
3# Week	0,0	0,0	0,0	2,0
4# Week	0,0	0,0	0,0	2,0
5# Week	0,0	0,0	0,0	2,0
6# Week	0,0	2,0	0,0	0,0
7# Week	0,0	0,0	4,0	2,0
8# Week	0,0	0,0	4,0	2,0
9# Week	0,0	0,0	3,0	1,0
14# Week	2,0	0,0	0,0	0,0
Total hours:	***2,0***	***2,0***	***11,0***	***15,0***

The methodological strategies and the evaluation system contemplated in this Course Description will be adapted according to the needs presented by students with disabilities and special educational needs in the cases that are required.