DEGREE CURRICULUM

THE BIOTECHNOLOGY IN PRODUCTION AND ANIMAL HEALTH

Coordination: NOGAREDA BURCH, CARMINA

Academic year 2017-18

THE BIOTECHNOLOGY IN PRODUCTION AND ANIMAL... 2017-18

Subject's general information

Subject name	THE BIOTECHNOLOGY IN PRODUCTION AND ANIMAL HEALTH
Code	101631
Semester	1st Q(SEMESTER) CONTINUED EVALUATION
Typology	<table><tr><th>Degree</th><th>Course</th><th>Typology</th><th>Modality</th></tr><tr><td>Bachelor's Degree in Biotechnology</td><td>4</td><td>OPTIONAL</td><td>Attendance-based</td></tr></table>
ECTS credits	6
Groups	1GG
Theoretical credits	0
Practical credits	0
Coordination	NOGAREDA BURCH, CARMINA
Department	CIÈNCIA ANIMAL
Teaching load distribution between lectures and independent student work	Presential Hours: 60th Non presential hours: 90th
Important information on data processing	Consult this link for more information.
Language	English 90% Catalan 5% (visits) Spanish 5% (visits)
Office and hour of attention	Carmina Nogareda Burch (coordinator) Center: ETSEA Department: ANIMAL PRODUCTION Office: 1.2.25 Time query: 9-19 am by appointment Phone: 973702559 Beatriz Perez Serrano Center: ETSEA Department: ANIMAL PRODUCTION Office: 05/01/08 Time query: 9-19 am by appointment Phone: 973 706495 Jose Antonio Martinez Moreno Center: ETSEA Department: ANIMAL PRODUCTION Office: 01/02/09 Time query: 9-19 am by appointment Phone: 973 702558

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
LÓPEZ HELGUERA, IRENE	irenelh@ca.udl.cat	,36	
MORENO MARTÍNEZ, JOSÉ ANTONIO	joseantonio.moreno@udl.cat	,48	
NOGAREDA BURCH, CARMINA	cnogareda@ca.udl.cat	3,12	
SERRANO PÉREZ, BEATRIZ	bserrano@ca.udl.cat	3,24	

Subject's extra information

Recommendations

Understanding English

Learning objectives

Students who pass the course will be able to:

Learn about the basics of production and animal health, including zoonoses.
Understand and know the benefits of biotechnology in the prevention, diagnosis, control and eradication of animal diseases (new vaccines and new diagnostic tests)
Understand and know the benefits of biotechnology in animal reproduction

Students who pass the subject should be able to: (Objectives capacity)

Use materials and equipment suitable for laboratory diagnosis and control of reproduction and of animal diseases.

Competences

The aim of the course is to offer to students who already have knowledge of Animal Physiology, Virology and Immunology, the range of possibilities of biotechnology in production and animal health. We study the benefits of biotechnology in the prevention, diagnosis, control and eradication of animal diseases. We pay special attention to zoonoses (diseases that can be transmitted to humans) and knowledge on the official regulations for farmers to improve animal health and food safety.

General skills

Graduates in Biotechnology must:

- Developing protocols and applications for biotechnology products get interesting animal
- Work in biotechnology companies in the research, development and production of application of animal

Specific skills (according to document content)

• Students should know basic notions of production and animal health.

• Students should know the benefits of biotechnology in the prevention, diagnosis, control and eradication of animal diseases (new vaccines and new diagnostic tests)

• Student should acquire notions of the official regulations so that farmers and consumers will improve animal health and food safety.

Subject contents

PART 1.

Item1. Introduction to Animal Production Systems. Definition of livestock farm. 2h

Item 2. Basic knowledge of extensive and intensive livestock. 2h

Item 3. Basic knowledge of dairy cattle farms. 2h

Item 4. Basic knowledge of intensive beef cattle. 1h

Item 5. Basic knowledge of pig farms and their management. 2h

Item 6. Basic knowledge of sheep and goats farms 2h

Students will make public presentations. The number of students per group will depend on the number of students in class. They will present a paper during 10 min. like in a Congress communication. 8 h

PART 2.

Item 7. Introduction to reproductive biology. 2h

Item 8. The organization and function of the female and male reproductive system. 2h

Item 9. Endocrinology of male and spermatogenesis. 2h

Item 10. Endocrinology of female and estrus cycle. 2h

Item 11. Pregnancy and parturition 3h

Item 12. Factors affecting fertility and embryonic survival 1h

Practical activities

PART 1

Practice 1. -. Visit to a dairy goat farm and cheese production 4h
http://www.formatgesdeponent.com/web/ct/noticies.php

Practice 2. Visit to the Department of Animal Production Laboratory. Study of models of different animal species. 4h

Practice 3. Visit the Laboratory animal's facilities of the University of Lleida (Campus Medicine). 4h

http://www.udl.es/recerca/oficina/sct/serveis/estabulari.html
http://www.udl.cat/recerca/oficina/newsletter/documents/Estabulari.pdf

PART 2

Practice 4. Anatomy and histology of female and male reproductive system. 2h

Practice 5. Semen evaluation methods in cattle. 2h

Practice 6. Synchronization technologies of estrus and ovulation 2h

Practice 7. Ultrasound scan technology associated to animal reproduction. 2h

Methodology

Type of activity	Description	Classroom Student work		Student Work outside of the classroom		Evaluation	Total Time
		Objectives	**Hours**	**Student work**	**Hours**	**Hours**	**Hours**
Lectures	Lecture (Class. Large group)	Explanation of the main concepts	**28**	Study: Learn, understand and synthesize knowledge	**28**	4	**60**
Problems and cases	Class participation (Class. Large group)	Problem solving	**0**	Learning how to solve problems	**0**		**0**
Seminars	Class participation (Medium- sized group)	Activities of discussion or implementation	**0**	Problem solving and discussion	**0**		**0**
Lab	Laboratory Practice (Medium-sized group)	Implementation of the practice: to fully understand, measure ...	**8**	Study and monography writing	**8**	1	**17**
Computer room	Computer classroom practice (Medium- sized group)	Implementation of the practice: to fully understand, measure ...		Study and monography writing			
Field Work	Practice Fieldwork (Medium- sized group)	Implementation of the practice: to fully understand, measure ...	**0**	Study and monography writing	**0**		**0**
Visits	Visit farms or industries	Making the Visit	**15**	Study and monography writing	**5**		**20**
Guided Activities	Student work (individual or group)	Guiding Student study (in tutoring hours)	**9**	bibliographic work, study, etc.	**40**	4	**53**
Others							
Totals			**60**		**78**	9	**150**

Development plan

The development plan will be found in the 'Recursos' folder

Evaluation

Exams	Practices	Case studies and problems	Other activities
60%	26%	14%	

Activity type	Grading System		Grading weight
	Procedure	**Number**	**(%)**
Lectures	Written tests on theory syllabus	2	**60**
Problems and cases	Paper delivery or exams about test cases	8	**26**
Seminars	Written or oral evidence	0	
Lab	Delivery reports, written or oral evidence	0	
Computer room	Delivery reports. Written or oral tests.		
Field Work	Delivery reports. Written or oral evidence	4	
Visits	Delivery reports. Written or oral tests.		
Guided Activities	Delivery of work	1-2	**14**
Others			
Total			**100**

SUMMARY of EVALUATION

Exams: 60% (30% C.Nogareda and 30% B.Serrano). Classes + Questions related to your own presentation and 2 more presentations at your choise (C.Nogareda)

Practices: 26 % (13% C.Nogareda +JA.Moreno and 13% B.Serrano). Presentation evaluation+ A ttendance + test of each practice or visit (C.Nogareda) . Attendance, tests.... (B.Serrano)

Cases and problem analysis: 14% (7% C.Nogareda and 7% B.Serrano). Glossary questions (C.Nogareda) and Activities during the classes (B.Serrano)

Bibliography

Textbooks

Malik P.K. et al.2015. Livestock production and climate change.
http://www.cabi.org/cabdirect/FullTextPDF/2015/20153123668.pdf

MACKENZIE AA 2005. Biotechnology Applications in Animal Health and Production. OIE FAO. 1989 Biotechnology for Livestock Production.

FAO / IAEA. In 2005. Molecular Diagnostic PCR Handbook "(Handbook of Molecular Diagnostics the mediante PCR), edited by GJ Viljoen, LH Nel and JR Crowther. Springer Publishers

FAO / IAEA. 2005 Applications of gene-based Technologies for Improving Animal Production and health in developing countries. Ed by HPS Makki and GJ Viljoen Senger PL. Current Conception, Inc.., 2006.

MJ FIELDS, SAND RS YELICH JV. Factors affecting calf crop. Biotechnology of Reproduction. CRC Press, 2002.

GORDON I. Cabi Publishing, 2004.

Further reading

Scientific articles in the “recursos” folder of the subject