

Academic Year/course: 2022/23

## 28428 - Reproduction and Obstetrics

### Syllabus Information

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**Academic Year:** 2022/23

**Subject:** 28428 - Reproduction and Obstetrics

**Faculty / School:** 105 - Facultad de Veterinaria

**Degree:** 451 - Degree in Veterinary Science

**ECTS:** 6.0

**Year:** 3

**Semester:** Second semester

**Subject Type:** Compulsory

**Module:**

## 1. General information

### 1.1. Aims of the course

The general goal to be achieved with the subject focuses on the students to know in depth the aspects, both physiological and pathological and technological, affecting the reproductive organ function pets to apply them in their control, management and resolution problems.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the results learning of the subject provides training and competence to contribute to some extent to its achievement.

The 17 SDGs are: (1) No Poverty, (2) Zero Hunger, (3) Good Health and Well-being, (4) Quality Education, (5) Gender Equality, (6) Clean Water and Sanitation, (7) Affordable and Clean Energy, (8) Decent Work and Economic Growth, (9) Industry, Innovation and Infrastructure, (10) Reducing Inequality, (11) Sustainable Cities and Communities, (12) Responsible Consumption and Production, (13) Climate Action, (14) Life Below Water, (15) Life On Land, (16) Peace, Justice, and Strong Institutions, (17) Partnerships for the Goals

The specific objectives to be achieved to achieve the overall objective are:

- Understand the main concepts, principles and terms in which the subject of Reproduction and Obstetrics and its importance within the veterinary profession is based.
- Remember the anatomical configuration and physiological function of those parts or organ systems of domestic animals, either directly or indirectly involved in the reproductive function in both the female and the male, as well as disorders related to both.
- Know and understand the techniques of biotechnology applicable in the field of animal breeding to improve production and/ or economically, reproductive performance of domestic and useful species.
- Know and understand the reproductive phenomena that are necessary to achieve pregnancy and diagnosis
- Know and understand the reproductive phenomena concurring before, during and after childbirth, and obstetric situations applicability.
- Know and understand the various methods of diagnosis and treatment of various pathological conditions directly related to reproductive function in various domestic species way.
- Establish the basic bibliography of consultation and encourage their use. Besides objective of the course will enhance the development of several generic skills, defendants in the professional field.

In the same way, as specific objectives related to the sustainable **Objective 3. Ensure healthy lives and promote well-being for all at all ages** development goals for this subject, we propose some of these SDGs and we hope to achieve specific goals in the future, in such a way that the acquisition of the learning results of the subject provide training and competence to the student to contribute to some extent to their achievement:

- Objective 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Objective 3. Ensure healthy lives and promote well-being for all at all ages
- Objective 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Objective 5. Achieve gender equality and empower all women and girls
- Objective 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Objective 12. Ensure sustainable consumption and production patterns

- Objective 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Objective 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

## 1.2. Context and importance of this course in the degree

By means of Reproduction and Obstetrics, as a compulsory subject within the module Clinical Sciences in the Department of Animal Medicine and Surgery, students should acquire the necessary skills to be able to attend the fourth grade Reproduction species integrated in the module " Animal Clinical Sciences and Health "and optimize learning and the implementation of the knowledge acquired in the last degree course (" Practicum "). And finally, the application of all this knowledge into their professional work as a veterinarian.

## 1.3. Recommendations to take this course

The student must have completed all the courses of first and second degree course and be enrolled in the subjects which in his case would have been pending in these courses.

It is necessary to have a solid knowledge of anatomy and animal histology, biology and physiology. It is also important the understanding of the endocrine basis applicable to the study of reproductive function.

# 2. Learning goals

## 2.1. Competences

On successful completion of this course, students will be able to:

### Transversal skills

- Analyse, synthesize, solve problems and make decisions in the areas of veterinary professionals.
- Teaming, uni or multidisciplinary and show respect, appreciation and sensitivity to the work of others.
- Maintain ethical behavior in the exercise of their responsibilities to the profession and society.
- Disclose information obtained during the professional practice of veterinary fluently, oral and written, with other colleagues, authorities and society in general.
- Write and present professional reports, while maintaining the necessary confidentiality.
- Search and manage information related to veterinary activity.
- Know and apply the scientific method in professional practice including evidence-based medicine.
- Know advice and professional help
- Be aware of the need to maintain current knowledge, skills and attitudes of professional skills through a process of continuous training.
- Know the rights and duties of the veterinarian, with special emphasis on ethical principles.
- Know the organizational, economic and management aspects in all those fields of the veterinary profession.

### Specific skills

- Manage anatomy-physiological concepts reproductive endocrinology both male and female.
- Perform history and clinical examination of the animals from reproductively.
- Collect and forward all types of samples with its report, as support for reproductive clinic.
- Perform basic analytical techniques and interpret their clinical, biological and chemical results in the field of reproduction.
- Apply knowledge of the different biotechnologies of animal reproduction.
- Have the basis for planning, diagnosis, monitoring and maintenance or interruption of pregnancy.
- Assist in childbirth, postpartum and in basic newborn care.
- Identify possible changes that may occur to the reproductive system in both male and female, facing his diagnosis, using various general and instrumental techniques, including necropsy.
- Apply the most common medical and surgical treatments in animal?s reproductive clinic level and basic care to ensure the proper reproductive functioning.
- Diagnose and resolve obstetrical problems through surgical techniques doctor.
- Addressing reproductive emergency room and Veterinary first aid

With the objectives reflected in the Grade skills in Veterinary Medicine (Order ECI / 333/2008) for this subject, which are addressed:

- Reproduction, childbirth and postpartum: Care and diseases.
- Assisted Reproduction.

- Methods and procedures for clinical examination, additional diagnostic techniques and interpretation.
- Diagnosis.

## 2.2. Learning goals

If students complete the course successfully, they should be able to

- Know, understand and explain the basics of each of the steps involved in the process of reproduction and reproduction biotechnologies and obstetric techniques.
- Interrelate different concepts and knowledge to apply to treatments playback control, facing planning, optimization and resolution of pathology, using techniques and most appropriate treatments.
- Use properly the scientific terminology of this matter.
- Handle basic scientific instrumentation and to obtain data by performing various tests in the laboratory and analyze the data to get results that can interpret and can use.
- Acquire the necessary skills to perform certain both laboratory and animal tests and is able to interpret them.

## 2.3. Importance of learning goals

The student who has passed the course will be able to understand and analyse the fundamentals of Reproduction and Obstetrics as a basis for solving problems associated with it. Knowing in depth both physiological and pathological and technological aspects that affect the reproductive organ function pets will allow students to apply them in their control and management.

# 3. Assessment (1st and 2nd call)

## 3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

### Evaluation activities

The student must demonstrate the achievement of the learning outcomes, and therefore the general and specific goals by the following evaluation activities:

#### 1.- Evaluation of theoretical teaching:

It will be 70% of the final grade. It will consist of a Theory Exam

Written tests of theoretical teaching: An examination at the end of the semester will be held as per schedule approved by the Board of the Centre.

It will consist of forty multiple-choice questions and short answer questions. Wrong answers not qualify for negative points.

#### 2.- Evaluation of the practical sessions

Attendance at practical sessions is compulsory.

The attendance and participation in all practice sessions is compulsory.

There will be an objective theoretical-practical test that will be assessed up to with 25%. During the practical sessions a questionnaire will be carried out to verify that they have acquired the competences related to them and that it will be evaluated with be evaluated with up to 5%.

This theoretical-practical test will be compulsory for all students, whether or not they have attended the practical sessions, and it will represent 20% of final grade.

Students who have not attended all practices, in addition to the test describes above, must demonstrate that they have acquired the necessary practical skills by overcoming a practical exercise (laboratory sessions) that will allow the to obtain up to 5%.

The note obtained in this section will be saved for subsequent courses.

#### 3.- Presentation of group work (seminar sessions)

Attendance at public exhibition of works is compulsory.

Is scored, the exposition of the same (clarity, communication skills and discussion of results, etc.). Will mean up to 5% of the final grade.

The note obtained in this section will be saved for subsequent courses

### FINAL SCORES

The final score will be the sum of all evaluation activities

Activity	Percentage of the final grade
Theoretical teaching	70%
Practical sessions	25%

The student, in order to pass the course, must get these 3 requirements

:

- Answer correctly at least 24 of the 40 questions of the theoretical teaching in the examination
- Obtain at least 50% (1 points) in the theoretical-practical test

Students that have some lack of attendance at practices, in addition to obtaining at least 50% in the theoretical-practical test, must obtain at least 75% in practical exercises (laboratory sessions).

- Present the group work

The scores obtained during the course of the activities described in paragraphs 2 and 3 will remain in the 2nd call of the same course for students who have not passed the subject in the first call. In addition, the note obtained in paragraph 2 and 3 will be saved for subsequent courses.

When student has not pass paragraph 2 and/or 3 in the first call, but has 24 of 40 questions of the written examination of the theoretical teaching, this theoretical note will be save for the second call in the current year.

#### **Marking system:**

According to the national regulation Law 1025/2003, 5th of September which lays down the European system of credits and marking system for the university degree.

0-4,9: FAIL.

5,0-6,9: PASS

7,0-8,9: GOOD (NT).

9,0-10: EXCELLENT (SB).

As the article 158 of the Statutes of the University of Zaragoza lays down, provisional grades will be displayed at least for 7 days and students will be able to review them on the date, time and place provided for that purpose.

#### **Test for distance learners or those that arise in other various calls for the first**

A final exam will include:

1. Written exam of theoretical teaching (70% of the final grade): It will consist of forty questions of test type and short questions, requiring to obtain at least 24 of the 40 questions. Errors in the test will not be scored with negative points.

2. Evaluation of practical teaching (25% of the final grade): the student must perform a practice exam consisting of an objective theoretical-practical test (requiring pass at least 50%). Practical exercises (laboratory sessions) will be assessed too (requiring pass at least 75%).

3. Evaluation of the presentation of a work. It will be graded up to 5% of the mark.

The final grade is the sum of the notes of each assessment activity.

## **4. Methodology, learning tasks, syllabus and resources**

### **4.1. Methodological overview**

The learning process that is designed for this subject is based on ....

Theoretical knowledge of the main concepts of Animal Reproduction and Obstetrics, and practices at both laboratory and field applications.

Practical activities are aimed scheduled an approximation to reality through observation and direct manipulation, and previous training courses scheduled for the fourth and fifth degree course.

### **4.2. Learning tasks**

They will be developed based on:

- Theoretical classes
- Practical classes
- Seminars
- Presentation of work

### **1.Lectures hours: 39 h**

Non-contact hours: 61 h.

Teaching-learning methodology:

Participatory teaching lectures. The classes are supported with ICT technologies and traditional systems. Students have previously graphic material exposed through the virtual platform of the course (Moodle) and deposit notes in the Reprography Service of the Faculty. the participation of students in posing questions or discussion of issues of particular relevance to difficulty or compression of the issues is encouraged.

## 2. Lab:

Hours: 18 h

Non-contact hours: 8.5 h

Teaching-learning methodology:

A total of 17 hours of practice will be held in the laboratories of Reproduction at the seminar, teaching ship and farms, distributed in 7 sessions of varying lengths depending practice. They will be taught according to the groups scheduled in the middle.

Students will have scripts and specific materials for their understanding and realization.

Initially an explanation recalling the foundation of practice and then the students will practice under constant supervision of teachers will be held. At the end of each session the results will be analysed and the emerging doubts will be resolved.

## 3. Seminar Sessions

Hours: 3 h

Non-contact hours: 23 h

Teaching-learning methodology:

Complementary activity to strengthen the related concepts with various topics of the subject by exposing papers prepared in advance by each participant group.

### 4.3. Syllabus

#### 1. Program of lectures:

#### **BLOCK I: FUNDAMENTALS OF ANIMAL REPRODUCTION**

Unit 1. Introduction: Concept of the subject. Application of anatomical and physiological foundations endocrinological of reproduction in the female.

Unit 2. Puberty and sexual cycle in females. External factors.

Unit 3. Implementation of the anatomical and physiological foundations endocrinological of reproduction in the male. Unit 4. Puberty in male and female hormonal cycle. External factors.

Unit 5. Formation of semen.

#### **BLOCK II: REPRODUCTIVE BIOTECHNOLOGY**

Unit 6. Introduction to reproduction biotechnology. Semen collection.

Unit 7. Contrasting seminal. Spermogram: meaning and evaluation

Unit 8. Dilution of semen. Types diluents.

Unit 9. seminal Conservation: refrigeration, freezing. Thawing.

Unit 10. Types of artificial insemination. Factors governing the success of artificial insemination.

Unit 11. Control of the sexual cycle. Main products used. Management techniques.

Unit 12. In vitro fertilization. Applications.

Unit 13. Embryo Transfer. Methodology transfer in different species. Unit 14. micromanipulation of embryos.

Unit 14. Embryo micromanipulation.

#### **BLOCK III: OBSTETRICS**

Unit 15. Concept of obstetrics. Migration of gametes. Survival of gametes.

Unit 16. Fertilisation: phases and stages of fertilization. Anomalies of fertilization.

Unit 17. Segmentation and migration of the embryo. maternal recognition of pregnancy.

Unit 18. Implementation: morphological and endocrinological aspects. Types of implementation. Unit 19. Placentation. Types of placenta. Physiological endocrinology placenta. Umbilical cord.

Unit 20. Gestation. Care of the pregnant female. Development and growth foetal.

Unit 21. Gestation: Diagnostics of pregnancy.

Unit 22. Pelvimetry and foetal position. Valuation methods.

Unit 23. Delivery: Concept. Stages of labour. Management and hygiene. Birth control. Unit 24. Puerperium.

Unit 25. Lactation: Mammary gland. Colostrum. Milk. Artificial feeding.

#### **BLOCK IV: REPRODUCTION PATHOLOGY**

Unit 26. Sterility and infertility in the male anatomical, functional and congenital causes.

- Unit 27. Interventions in the male reproductive
- Unit 28. Sterility and infertility in the female anatomical, functional and congenital causes.
- Unit 29. Embryonic mortality. Abortion. Induction of abortion.
- Unit 30. Gestation: Mother Diseases
- Unit 31. Gestation: Diseases of foetal appendages and foetus. Foetal suffering.
- Unit 32. Dystocia. Classification of dystocia. Obstetric manoeuvres. Obstetric material.
- Unit 33. Dystocia of maternal origin. Resolution.
- Unit 34. Dystocia of foetal origin, non-invasive obstetric manoeuvres.
- Unit 35. invasive obstetric spoke on the mother and the unborn baby
- Unit 36. Accidents consecutive childbirth. Pathology of puerperium
- Unit 37. Pathology of the mammary gland in the male and female
- Unit 38. Pathology of the newborn

1. **Lab:**

- 2. Artificial insemination techniques in teaching anatomical models Location: Laboratory Genitals. Duration: 3 h
- 3. Seminal Technology

Place of delivery: Laboratory semen. Duration: 2.5 h

- 1. Assisted Reproduction: handling of oocytes and embryos Place of delivery: Laboratory embryos Duration: 2.5 h
- 2. Foetal position and obstetric manoeuvres Place of delivery: Reproduction Seminar Duration: 1.5 h
- 3. Blockages and obstetric interventions.

Place of delivery: Seminar Playing, teaching ship. Duration: 2.5h

- 1. Diagnostic techniques in reproduction Place of delivery: Laboratory semen. Duration: 3 h
- 2. Care delivery

Place of delivery: Livestock farm.

Duration: 3 hours

#### 4.4. Course planning and calendar

The dates and key milestones of the subject are described in detail, along with the other subjects in the third course in the Degree of Veterinary Medicine, on the website of the Faculty of Veterinary Medicine (link: [http://veterinaria.unizar.es / gradoveterinaria /](http://veterinaria.unizar.es/gradoveterinaria/)). This link will be updated at the beginning of each academic year.

Safety standards in practice

PROPER ATTIRE: each of the practices should be assisted with proper clothing:

- Teaching farm: overalls, reinforced boots and mask and protective glasses if necessary
- Laboratory: glasses, mask, lab coat
- Students collaboration: lab coat

(<http://uprl.unizar.es/seguridad>)

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#### 4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=28428>