ACADEMIC YEAR 2025/2026

General information	
Name of the course	**FUNDAMENTALS OF REPRODUCTION IN DOMESTIC ANIMALS**
Integrated teaching modules	/
Degree course	Animal Science
Academic Year	III
European Credit Transfer and Accumulation System (ECTS)	6 (ECTS lessons: 5; ECTS exe/lab/tutor: 1)
Language	Italian
Period of teaching	I semester: 06.10.2025 – 30.01.2026
Attendance	Mandatory

Teacher	**e-mail address**	**phone**
Luisa Valentini	luisa.valentini@uniba.it	+39 0805713873
Davide Monaco	davide.monaco@uniba.it	+39 080 5713826

Headquarters	Campus of Veterinary Medicine, S.P. per Casamassima km 3, 70010 Valenzano (Ba)
Virtual rooms	Microsoft Teams platform if required. Code: **sqn2guz** (Prof. Valentini). Microsoft Teams platform if required. Code: **g8618vm** (Prof. Monaco).
Tutoring (time and day)	Prof. Valentini:Tuesday: 15:00-16:00; Thursday and Friday: 12:30-13:30; on Teams platform, code: yus6v33 Tuesday, Wednesday and Thursday: 15.30-16-30 (Prof. Monaco); by appointment via e-mail, in Department or via Microsoft Teams platform

Syllabus	
Learning Objectives	The course provides fundamentals about animal reproduction and particularly: female and male reproductive behaviour and physiology in companion species (canine, feline equine) and in livestock species (bovine, buffalo, sheep, goat, swine, donkey); reproductive biotechnologies, benefit and weaknesses related with species and production systems; criteria for reproductive conditioning; assisted reproductive technologies and their application in different species and breeds. The course also provides knowledge and practical skills for working in livestock semen production centres and for reproduction management in pets and livestock species.
Course prerequisites	To take the exam, the student must have passed the 1st year exam of 'Physiology and endocrinology of domestic animals: basic knowledge'.

Contents of the teaching	**General part** Influence of environmental factors on reproduction; gametogenesis and gonadal endocrine activity: ovarian cycle, folliculogenesis and oogenesis; spermatogenesis, spermiogenesis and spermiation; cycle of the seminiferous epithelium; sperm maturation and capacitation; secondary sex characteristics; macroscopic, microscopic and computerised analysis of semen quality (concentration, vitality, motility, morphology, capacitation, acrosome reaction). **Companion animals (dog; cat; equine)** Recall about anatomy of the male genital system; the ovarian cycle; criteria for evaluating females in preparation for reproduction; detection and monitoring ovulation to identify the fertile period; pregnancy, delivery, puerperium. Breeding of litter and neonatal period; anatomical characteristics of the male and female reproductive systems; characteristics of ejaculate; criteria for evaluating males for reproduction and reproductive behaviour; overview of assisted fertilisation techniques. **Livestock** Recall about anatomy of the male and female genital system; species differences characterising semen collection and the artificial insemination techniques used; specie-specific features characterizing semen collection and the artificial insemination techniques in livestock species (bovine, buffalo, sheep and goats, swine, donkey); reproductive physiology (ovarian cycles, estrus, evaluation of reproductive behavior, pregnancy, birth monitoring, post-partum pathologies); semen collection techniques; semen analysis, manipulation, conservation and management; hints on artificial insemination techniques in large animal species; notes on the conditioning of reproductive activity (seasonal adjustment and heat synchronization). **Practical activities and lab tutorials** • Hands-on genital systems (anatomy room) - Functional anatomy of the female reproductive system; peculiarities in relation to artificial insemination techniques • Lab tutorials and hands-on - Description and preparation of equipment (dummy, artificial vagina) for semen collection in different species; - Semen collection procedures, evaluation, dilution, packing, refrigeration and freezing - Semen thawing and preparation for artificial insemination; - Evaluation of oestrous behaviour in different domestic species; - Artificial insemination technique.

Biosafety rules for the attendance of practical activities.	Access to laboratories, stables and isolation unit of the veterinary teaching hospital will be allowed only to students wearing protective clothing (disposable coats and gloves and, when required, also footwear) and that have read the biosafety manual.

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Materail for the personal study	
Books and bibliography	1) Hafez B, Hafez ESE (2011). Riproduzione negli Animali di Allevamento. Ed. Libreriauniversitaria.it; 2) Veronesi MC, Castagnetti C, Taverne MAM (2012) Neonatologia Veterinaria. EdiSES; 3) Senger (2012): Pathways to Pregnancy and Parturition, 3rd Edition; 4) Noakes D, Parkinson TJ, England GCW (2019). Veterinary reproduction and Obstetrics, 10th edition; 5) PowerPoint presentations, scientific articles or journals indicated or provided by lecturers.
Additional materials	Lecture notes are recommended. To improve learning, additional material will be provided (links to websites, video tutorials or specific links related to the topics covered).

Work schedule			
Hours			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Individual study
150	40	10	100
ECTS			
6	5	1	

Teaching strategy	
	Knowledge acquisition will be based mainly take place on lectures integrated with active learning methods, such as Traditional Flipped (after having read the material, the students elaborate the topic together with their classmates and discuss it in the classroom under the guidance of the teacher) to integrate information and encourage learning, and participation in seminars on specific topics. The lessons will take place in the classroom, equipped with a personal computer connected to a projector, mainly using the PowerPoint software to support the explanation with slides and videos. Specific seminars will be organized by lecturer Applied knowledge will be provided through practical laboratory exercises and field visits to livestock farms.

Expected learning outcomes	
Knowledge and understanding ability	At the end of the course, the student will have knowledge and understanding ability related to: • Reproductive management of companion and farm animal species
Applied knowledge and understanding ability	At the end of the course, the student will be able to: • reproductive physiology of companion and farm animal species and ability to manage/monitor different reproductive processes (fertilization, pregnancy and rearing of the offspring); • detect reproductive problems/pathologies due to incorrect management or other causes; o assisted reproductive technologies and their applications; • collect and critically evaluate farm fertility index or individual animal reproductive processes, identify critical issues and intervention margins, formulating solution/treatment management options/plans in collaboration with other professional figures (veterinarians, specialized technicians);

	• evaluation, management and improvement of farm animals reproductive processes; • collection, evaluation, preparation (dilution, freezing, storage, thawing) and handling of semen in different livestock species.
Soft skills	**Autonomy of judgment** • collect and interpret data about reproductive activity of individual companion animal, dog/cat breeding kennel or livestock farms; • collect and interpret data about reproductive activity of individual companion animal, dog/cat breeding kennel or livestock farms; • formulate a hypothesis and option of intervention for problem solving/improvement of reproductive processes to manage reproduction in the livestock and companion species, identify any critical issues and propose intervention criteria; • implement breeding programs (farms and companion animals breeding Kennel). **Communication skills** • Mastery of the course/reproductive terminology; efficiently communicate and explain reproductive processes/issues/management/treatment options with owners/staff members or other interlocutors. **Capacity of self-learning** • Acquisition of basic principles and of an overview about animal reproductive physiology and assisted reproductive technologies; this background will allow him/her to independently progress and deep knowledge through voluntary studies and by planning and attendance to post-graduate theoretical-practical training courses. Reference texts and bibliographic material will be provided for promoting and enhancing voluntary study.

Assessment and feedback	
Methods of assessment	During the course, optional intermediate written tests may be given, consisting of multiple-choice and open-ended questions. As minimum requirements the student must demonstrate that ○ answer at least two questions satisfactorily during the oral examination; ○ knowledge acquisition about fundamentals of reproductive processes.
Evaluation criteria	During the evaluation process, the students must demonstrate: ● *Knowledge and understanding ability* ○ Demonstration of a deep understanding of the requested subject/topic by providing targeted and well-organized answer. ● *Applying knowledge and understanding ability* ○ Understand, evaluate and provide operational strategies for optimizing livestock and companion animals reproductive management and solve problems related to incorrect reproductive management. ● *Autonomy of judgment* ○ Demonstration of critical thinking and critical evaluation of farm/animal reproductive index/parameters. ● *Communication skills* ○ Demonstrate communication skills and mastering of the specific subject lexicon. ● *Capacities to continue learning* ○ Provide correct answer during oral evaluation.
Criteria for assessment and attribution of the final mark	The final score mark is expressed in scores out of thirty; the minimum mark for passing the exam is 18/30. Assessment criteria would consider: the student's ability

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	to express himself clearly, comprehensively and with appropriate terminology. Demonstration of knowledge acquisition, deep understanding and proper exposition of course contents. The final mark will be the result of a collective assessment by the Commission on the partial tests and the oral examination; honors (30 cum laude) will be considered only if the student will exhaustively answer to all questions with excellent exposition and proper lexicon.
Other comments	

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