

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
Tel. 01/2390 320
Division: Clinics
Unit: Reproduction and Obstetrics
E-mail of the course leader: jgrizelj@vef.unizg.hr
Register No of the organisational unit:
Zagreb, 10/02/2025

		
198001	REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu		
Primljeno:	11.02.2025	
Klasifikacijska oznaka	Org. jed.	
602-04/24-22/38	251-61-41; 251-61-31;	
Uredbeni broj	Prilozi	Vrijednost
251-61-22/323-25-133	0	-

COURSE SYLLABUS

Course name: Obstetrics and Reproduction 1
Academic year 2024/2025

Course leader: Full Prof. Juraj Grizelj
Deputy course leader: Full Prof. Nikica Prvanović Babić

Teachers: Full Prof. Juraj Grizelj, Full Prof. Martina Lojkić, Full Prof. Nikica Prvanović Babić, Full Prof. Marko Samardžija, Full Prof. Silvijo Vince, Assoc. Prof. Ivan Folnožić, Assoc. Prof. Iva Getz, Assoc. Prof. Branimira Špoljarić, Postdoc. Assist. Ivan Butković, Postdoc. Assist. Juraj Šavorić, Ivan Tomić, DMV

First day of classes: 3/3/2025
Last day of classes: 13/6/2025

Activities - Obstetrics and Reproduction 1 (1/6)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
03/03/2025	10:00	11:30	p01 Hormonal Regulation of Reproductive Cycle	8E-1, 8E-2, 8E-3		1:30	Samardžija M.	P_fizika
04/03/2025	8:15	9:45	p02 Cows and Heifers 1	8E-1, 8E-2, 8E-3		1:30	Špoljaric B.	P_farmakologija
05/03/2025	8:15	9:45	p03 Cows and Heifers 2	8E-1, 8E-2, 8E-3		1:30	Špoljaric B.	P_klinike
06/03/2025	10:00	12:15	v01 Anatomy of the Female	8E-1, 8E-2, 8E-3		2:15	Grizelj J.	V_porodništvo
06/03/2025	14:30	16:00	p04 Reproductive Cycle of Mares	8E-1, 8E-2, 8E-3		1:30	Grizelj J.	P_fizika
07/03/2025	10:00	12:15	v02 Anatomy of the Female II	8E-1, 8E-2, 8E-3		2:15	Šavoric J.	V_porodništvo
10/03/2025	10:00	12:15	v03 General Gynaecologic	8E-1, 8E-2, 8E-3		2:15	Butkovic I.	V_porodništvo
10/03/2025	12:30	14:00	p06 Reproductive Cycle of Goats and Sheep	8E-1, 8E-2, 8E-3		1:30	Špoljaric B.	P_patologija
11/03/2025	9:45	11:15	p05 Reproductive cycle of Sows	8E-1, 8E-2, 8E-3		1:30	Samardžija M.	P_fizika
11/03/2025	13:15	15:30	v04 General Gynaecologic	8E-1		2:15	Folnožic I.	V_porodništvo
12/03/2025	11:30	13:00	p07 Reproductive Cycle of Bitches and Cats	8E-1, 8E-2, 8E-3		1:30	Folnožic I.	P_kemija
13/03/2025	9:45	11:15	p08 Oogenesis and follicular development	8E-1, 8E-2, 8E-3		1:30	Lojkic M.	P_fizika
14/03/2025	13:00	15:15	v04 General Gynaecologic	8E-3		2:15	Folnožic I.	V_porodništvo
17/03/2025	9:45	12:00	v04 General Gynaecologic	8E-2		2:15	Folnožic I.	V_porodništvo
18/03/2025	9:00	10:30	p09 Hormonal Regulation of Ovulation	8E-1, 8E-2, 8E-3		1:30	Lojkic M.	P_farmakologija
18/03/2025	11:00	13:15	v05 Gynaecologic Examination of Cows	8E-1, 8E-3, V_porodništvo		2:15	Samardžija M.	V_porodništvo

Activities - Obstetrics and Reproduction 1 (2/6)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
19/03/2025	8:00	9:30	p10 Fertilization ana Nidation 1	8E-1, 8E-2, 8E-3		1:30	Lojkic M.	P_klinike
20/03/2025	7:30	9:00	p11 Fertilization and Nidation 2	8E-1, 8E-2, 8E-3		1:30	Prvanovic B. N.	P_kemija
20/03/2025	9:45	12:00	v05 Gynaecologic Examination of Cows	8E-2		2:15	Samardžija M.	V_porodništvo
21/03/2025	7:30	9:00	p12 Fertilization and Nidation 3	8E-1, 8E-2, 8E-3		1:30	Prvanovic B. N.	P_fiziologija
21/03/2025	10:00	12:15	v06 Gynaecologic Examination of Cows	8E-2		2:15	Grizelj J.	V_porodništvo
24/03/2025	9:00	11:15	v06 Gynaecologic Examination of Cows	8E-1, 8E-3		2:15	Grizelj J.	V_porodništvo
24/03/2025	14:00	15:30	p13 Pregnancy Diagnosis 1	8E-1, 8E-2, 8E-3		1:30	Getz I.	P_patologija
25/03/2025	8:30	10:45	v08 Gynaecologic Examination of Mares	8E-2		2:15	Grizelj J.	V_porodništvo
26/03/2025	8:30	10:45	v08 Gynaecologic Examination of Mares	8E-1, 8E-3		2:15	Grizelj J.	V_porodništvo
26/03/2025	11:00	12:30	p14 Pregnancy Diagnosis 2	8E-1, 8E-2, 8E-3		1:30	Getz I.	P_klinike
27/03/2025	13:15	14:45	p15 Pathology of Pregnancy 1	8E-1, 8E-2, 8E-3		1:30	Getz I.	P_klinike
28/03/2025	8:15	9:45	p16 Pathology of Pregnancy 2	8E-1, 8E-2, 8E-3		1:30	Vince S.	P_fizika
28/03/2025	10:45	12:15	v09 Gynaecologic Examination of Small Ruminants	8E-3		1:30	Špoljaric B.	V_porodništvo
31/03/2025	8:15	9:45	p17 Pathology of Pregnancy 3	8E-1, 8E-2, 8E-3		1:30	Vince S.	P_fizika
31/03/2025	10:00	12:15	v10 Gynaecologic Examination of Cows	8E-3		2:15	Šavoric J.	V_porodništvo

Activities - Obstetrics and Reproduction 1 (3/6)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
31/03/2025	12:30	14:00	p18 Physiology of Labour and Delivery 1	8E-1, 8E-2, 8E-3		1:30	Prvanovic B. N.	P_patologija
01/04/2025	8:15	9:45	p19 Physiology of Labour and Delivery 2	8E-1, 8E-2, 8E-3		1:30	Prvanovic B. N.	P_farmakologija
01/04/2025	13:00	15:15	v10 Gynaecologic Examination of Cows	8E-1, 8E-2		2:15	Šavoric J.	V_porodništvo
01/04/2025	18:00	21:45	v26 Clinical Night Shift	8E-2		3:45	Špoljaric B.	V_porodništvo
02/04/2025	12:00	13:30	p20 Spermiology 1	8E-1, 8E-2, 8E-3		1:30	Lojkic M.	P_klinike
02/04/2025	13:45	16:00	v11 Gynaecologic Examination of Mares	8E-3		2:15	Getz I.	V_porodništvo
03/04/2025	12:45	15:00	v11 Gynaecologic Examination of Mares	8E-1, 8E-2		2:15	Getz I.	V_porodništvo
04/04/2025	14:15	16:30	v09 Gynaecologic Examination of Small Ruminants	8E-1, 8E-2		2:15	Špoljaric B.	V_porodništvo
07/04/2025	14:00	15:30	v13 Anatomy of the Male dissection	8E-1, 8E-2		1:30	Lojkic M.	V_porodništvo
08/04/2025	10:00	11:30	p21 Spermiology 2	8E-1, 8E-2, 8E-3, P_klinike		1:30	Samardžija M.	P_klinike
09/04/2025	12:45	14:15	v13 Anatomy of the Male dissection	8E-3		1:30	Lojkic M.	V_porodništvo
10/04/2025	12:30	14:45	v14 Anatomy of the Male	8E-3		2:15	Samardžija M.	V_porodništvo
11/04/2025	9:30	14:45	v07 Gynaecologic Examina. of Cows/Bovine Farm Sljeme	8E-1, 8E-2		5:15	Vince S.	V_porodništvo
14/04/2025	8:30	10:45	v15 Anatomy of the Male revision	8E-3		2:15	Butkovic I.	V_porodništvo

Activities - Obstetrics and Reproduction 1 (4/6)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
14/04/2025	13:00	15:15	v15 Anatomy of the Male revision	8E-1, 8E-2		2:15	Butkovic I.	V_porodništvo
15/04/2025	15:00	16:30	p22 Artificial Insemination	8E-1, 8E-2, 8E-3		1:30	Grizelj J.	P_klinike
16/04/2025	10:45	12:15	v16 Andrologic Examination and semen examination 1	8E-2		1:30	Lojkic M.	V_porodništvo
22/04/2025	8:00	13:15	v07 Gynaecologic Examina. of Cows/Bovine Farm Sljeme	8E-3		5:15	Vince S.	V_porodništvo
22/04/2025	8:45	11:00	v16 Andrologic Examination and semen examination 1	8E-1		2:15	Lojkic M.	V_porodništvo
23/04/2025	10:15	12:30	v16 Andrologic Examination and semen examination 1	8E-3		2:15	Lojkic M.	V_porodništvo
23/04/2025	15:00	16:30	p23 Physiology and Pathology of the Puerperium 1	8E-1, 8E-2, 8E-3		1:30	Folnožic I.	P_klinike
24/04/2025	15:00	16:30	p24 Physiology and Pathology of the Puerperium 2	8E-1, 8E-2, 8E-3		1:30	Folnožic I.	P_klinike
25/04/2025	15:00	16:30	p25 Physiology and Pathology of the Puerperium 3	8E-1, 8E-2, 8E-3		1:30	Vince S.	P_klinike
05/05/2025	10:30	12:45	v12 Gynaecologic Examination of Cows	8E-1		2:15	Grizelj J.	V_porodništvo
05/05/2025	14:15	16:30	v12 Gynaecologic Examination of Cows	8E-2		2:15	Grizelj J.	V_porodništvo
06/05/2025	13:00	15:15	v17 Semen Examination 2	8E-2		2:15	Lojkic M.	V_porodništvo
07/05/2025	11:30	13:00	p26 Physiology and Pathology of the Puerperium 4	8E-1, 8E-2, 8E-3		1:30	Vince S.	P_klinike
07/05/2025	18:00	21:45	v26 Clinical Night Shift	8E-3		3:45	Špoljaric B.	V_porodništvo

Activities - Obstetrics and Reproduction 1 (5/6)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
09/05/2025	8:30	10:45	v17 Semen Examination 2	8E-1, 8E-3		2:15	Lojkic M.	V_porodništvo
09/05/2025	11:00	12:30	p27 Physiology and Pathology of the Udder 1	8E-1, 8E-2, 8E-3		1:30	Folnožic I.	P_klinike
13/05/2025	8:15	9:45	p28 Physiology and Pathology of the Udder 2	8E-1, 8E-2, 8E-3		1:30	Špoljaric B.	P_fizika
13/05/2025	10:00	12:15	v21 Artificial Vaginas and Semen Collection	8E-3		2:15	Folnožic I.	V_porodništvo
14/05/2025	8:15	9:45	p29 Physiology and Parhology of the Udder 3	8E-1, 8E-2, 8E-3		1:30	Grizelj J.	P_klinike
14/05/2025	14:15	16:30	v22 Udder Examination	8E-1, 8E-2, 8E-3		2:15	Vince S.	V_porodništvo
15/05/2025	13:30	15:45	v19 Vaginal Smears Examination	8E-1, 8E-2		2:15	Šavoric J.	
19/05/2025	11:15	13:30	v20 Vaginal Smears Examination	8E-1, 8E-2, 8E-3		2:15	Folnožic I.	V_porodništvo
20/05/2025	8:00	9:30	p30 Selected Topics	8E-1, 8E-2, 8E-3		1:30	Grizelj J.	P_klinike
20/05/2025	11:00	13:15	v25 Gynaecologic Surgical Operations	8E-1, 8E-2, 8E-3		2:15	Folnožic I.	V_porodništvo
22/05/2025	10:00	12:15	v23 Gynaecologic Examination of pets	8E-1, 8E-2		2:15	Folnožic I.	V_porodništvo
22/05/2025	13:30	15:45	v23 Gynaecologic Examination of pets	8E-3		2:15	Folnožic I.	V_porodništvo
23/05/2025	14:00	16:15	v27 Gynaecologic Surgical Operations	8E-2, 8E-3		2:15	Folnožic I.	V_porodništvo
26/05/2025	11:00	12:30	v27 Gynaecologic Surgical Operations	8E-1		1:30	Folnožic I.	V_porodništvo

Activities - Obstetrics and Reproduction 1 (6/6)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
27/05/2025	13:15	15:30	v29 Gynaecologic Examination of pets	8E-3		2:15	Folnožic I.	V_porodništvo
28/05/2025	13:30	15:45	v28 Udder Examination	8E-1, 8E-2, 8E-3		2:15	Šavoric J.	V_porodništvo
02/06/2025	10:00	12:15	v29 Gynaecologic Examination of pets	8E-1, 8E-2		2:15	Folnožic I.	V_porodništvo
03/06/2025	12:00	14:15	v30 Gynaecologic Examination of Mares	8E-1		2:15	Grizelj J.	V_porodništvo
04/06/2025	18:00	21:45	v26 Clinical Night Shift	8E-1		3:45	Špoljaric B.	V_porodništvo
05/06/2025	8:00	16:15	v24 Gynaecologic exami. of cows Bovine farm Bjelovar	8E-1, 8E-2, 8E-3		8:15	Grizelj J.	V_porodništvo
06/06/2025	14:00	16:15	v30 Gynaecologic Examination of Mares	8E-2, 8E-3		2:15	Grizelj J.	V_porodništvo
09/06/2025	10:45	13:00	v31 Gynaecologic Examination of pets	8E-1, 8E-2, 8E-3		2:15	Folnožic I.	V_porodništvo
10/06/2025	10:30	12:45	v32 Gynaecologic Examination of pets	8E-1, 8E-2, 8E-3		2:15	Folnožic I.	V_porodništvo
12/06/2025	9:15	11:30	v33 Gynaecologic Examination of pets	8E-1, 8E-2, 8E-3		2:15	Vince S.	V_porodništvo
13/06/2025	10:00	12:15	v34 Gynaecological Examination of pets	8E-1, 8E-2, 8E-3		2:15	Špoljaric B.	V_porodništvo
Total: 84						179:15		

STUDENT OBLIGATIONS

Lecture attendance	By attending lectures the student gains 3-6 points (60 lecture hours; each lecture hour equals a 0,1 coefficient). Students must attend at least 30 lecture hours.
Seminars attendance	-
Practicals attendance	By attending practicals the student gains 8-12 points (105 exercise hours; each practicals hour equals a 0,11 coefficient). Students must attend at least 80 practicals hours.
Active participation in seminars and practicals	A minimum of 5 (max. 10) points must be gained during practicals, which consists of the completion of a minimum of 3 (max. 6) positively evaluated assignments imposed by teacher and based on active participation during practicals (signed off by the teacher), 1 (max 2) field assignment and 1 (max 2) positive answer on short oral exams.
Final exam	Students' attendance of lectures and practicals as well as their active participation will regularly be monitored over the course of the entire semester. There will also be continuous knowledge-checking (progress test). The total points earned will be presented to the examiner at the final exam. In order to take the final exam, a student must earn a minimum of 16 points by attending lectures and practicals and through activities during practicals, and at least 20 points from continuous knowledge assessment. The final exam consists of 10 oral questions and in total brings up to 40 points (minimal 24 points is approval). The total sum of points achieved from the above-mentioned elements is expressed in the final mark (1 – 5), 1 being a fail.
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine (2022). Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. Article 41: a student can justifiably be absent from up to 50 % of the lectures; 20% of the seminars and 20 % of the exercises.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	There will be a written progress test performed during the semester consisting of 10 questions. The progress test brings 32 points (each question equals 3.1 points), 20 points being the minimum required to pass. Taking the progress test during the main term is compulsory (missing the main term needs to be justified). 3 additional progress test terms will be announced for the progress test in agreement with students. All four of the terms will be held in June and July (first term: 16 th of June 2025). Progress test is required in order to register for the final exam. However, the progress test is not a requirement for a signature in the grade book. If the student fails the progress test 4 times, he/she needs to take the whole course over again. In case he/she doesn't take the progress test or fails it 4 times, an additional term is possible if the student representative writes an official request to the respective Vice Dean. The Course leader makes the final decision.
Final exams (dates)	25/6/2025, 9/7/2025, 8/9/2025, 18/9/2025
Form of final exam	ORAL EXAM

LITERATURE

Obligatory literature	Lecture handouts by Merlin Selected chapters from: NOAKES, D. E., T. J. PARKINSON, G. C. W. ENGLAND (2018): Arthur's Veterinary Reproduction and Obstetrics, 10th Ed. (Noakes, D. E., T. J. Parkinson, G. C. W. England, Eds.), W. B. Saunders Company Ltd. GORDON, I. R. (1997): Controlled Reproduction in Pigs. (Gordon, E., Ed.), CAB International. SENGER, P. L. (2003): Pathways to Pregnancy and Parturition, 2nd Ed., Cadmus Professional communications, Science Press Division, USA BLANCHARD, T. L. ET AL., (2003): Manual of Equine Reproduction. 2nd Ed., Mosby. BSAVA Manual of Canine and Feline Reproduction and Neonatology, 2nd Ed. 2019., (G. England, A. von Heimendahl, Eds.), British Small Animal Veterinary Association. Gloucester, UK JOHNSTON, S. D., M. V. ROOT KUSTRITZ, P. S. OLSON (2003): Canine and Feline Theriogenology, 2nd Ed., Saunders Company Ltd., USA JACKSON, P. G. G. (2004): Handbook of Veterinary Obstetrics, 2nd Ed. (Rodenhuis, J., Z. Youd, Eds.), Saunders W. B. Company. BALL, P. J. H., A. R. PETERS (2004): Reproduction in Cattle, 3rd Ed. (Ball, P. J. H., A. R. Peters, Eds.), Blackwell Publishing Ltd, Oxford
Optional literature	Selected chapters from: BSAVA Manual of Canine and Feline Abdominal Surgery, 2nd Ed. (2015), (Williams, J. M., J. D. Niles, Eds.), BSAVA LANDSBERG, G., W. L. HUNTHAUSEN, L. J. ACKERMAN (2012): Behavioural Problems of the Dog and Cat, 3rd Ed., Saunders Ltd. MCKINNON, A. O. (2011): Equine Reproduction, 2nd Ed. (McKinnon, A. O., E. L. Squires, W. E. Vaala, D. D. Varner, Eds.), Lea and Febiger, USA SAMPER, J. C. (2009): Equine Breeding Management and Artificial Insemination, 2nd Ed., (Gower, J., S. Stringer), Saunders, USA The Merck Veterinary Manual (2010), 10th Ed., (Kahn, C. M., S. Line, Eds.), Merck & Co., Inc., USA HAFEZ, E. S. E. (2013): Reproduction in Farm Animals. 7th Ed. (Hafez, E. S. E., B. Hafez, Eds.), Wiley-Blackwell, USA. PUGH, D. G. (2002): Sheep and Goat Medicine. 1st Ed. (Pugh, D. G., Ed.), Saunders, USA SMITH, M. C., D. M. SHERMAN (2009): Goat Medicine. 2nd Ed. Wiley-Blackwell, USA SOLAIMAN, S. G. (2010): Goat Science and Production, (Solaiman, S. G., Ed.), Wiley-Blackwell BOYD, J. S., C. PATERSON (2000): Colour Atlas of Clinical Anatomy of the Dog and Cat. 2nd Ed., Mosby Ltd. HARKNESS, J. E., P. V. TURNER, S. VANDEWOUDE, C. L. WHELER (2010): The Biology and Medicine of Rabbits and Rodents, 5th Ed., Wiley-Blackwell BAKER, R., J. H. LUMSDEN (2000): Color Atlas of Cytology of the Dog and Cat, Mosby QUINTAS, H., LACASTA, D., FERRER, L. M. (2022): Differential diagnosis in sheep, 1st Ed., Doctor Herriot SL FERRER, L. M., ESMAEILI, H., LACASTA, D., RAMOS, J. J. (2023): Atlas of sheep and goat diseases, 1st Ed., Doctor Herriot SL

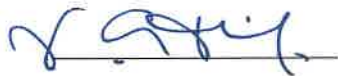
OBJECTIVES AND LEARNING OUTCOMES

Course objectives	Within the course framework, the students will get acquainted in detail with the hormonal regulation of the reproductive cycle of domestic animals, including phases, a clinical view of reproductive cycles and the artificial insemination of domestic animals. Students will also be thoroughly familiarized with oogenesis, the mechanism of ovulation, fertilization, nidation and placentation, as well as pregnancy, pregnancy diagnostics and pathology of pregnancy and the phases of parturition, physiology and pathology of puerperium, spermiology, and udders.
Learning outcomes	To be able to independently take the gynaecologic history and perform gynaecologic / andrological examinations (including udders) of female and male animals, including rectal palpation and ultrasound checking, in order to define the animal's reproductive status. To be able to timely perform artificial insemination, understand the principles of semen collection and insemination dose, and perform basic semen tests. To be able to properly assist labour and apply obstetrical methods in case of need. To check post-parturient animal and determine if the puerperium of the animal is running physiologically; and if not, to be able to assess the proper therapeutic approach. To assess general conditions at the farm level which influence optimal animal reproduction and milk production, overall animal production at the farm level, animal welfare and safety of animal products; to explain the neurohormonal regulation of sexual cycles of domestic animals; to independently perform andrologic and gynaecologic examinations of domestic animals; to clearly distinguish phases and clinical specificity of the sexual cycle of domestic animals; to apply proper methods of pregnancy diagnostics; to be acquainted with the physiology and pathology of puerperium; to be acquainted with the physiology and pathology of the mammary gland; to identify and explain the stages of parturition.

GRADING SCHEME

<i>Points</i>	<i>Grade</i>
Up to 59	1 (F)
60-76	2 (D,E)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader



Head of organizational unit:



Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Course