

Module title:	Farm Animals Reproduction	ECTS	4
Polish translation:	Rozród zwierząt gospodarskich		
Course:	Veterinary Medicine		

Module language: English		Stage: JM-FVM	
Form of studies: ☒ intramural ☐ extramural	Type of module: ☐ basic ☒ mandatory ☒ directional ☐ elective	Semester: 7 th	☒ winter semester ☐ summer semester
Academic year:		Intake 2022/2023	Catalogue number: FVM-V-JMSS-07W-D25/3_20

Module coordinator:	dr hab. Bartosz Pawliński, prof. SGGW
Teachers responsible for the module:	Academic teachers of the Institute Of Veterinary Medicine; Department of Large Animal Diseases and Clinic ; PhD students in accordance to the internal legal acts; visiting professors; other specialists in the field of study
Objectives of the module:	LECTURES DETAILED PROGRAM: 1. Fundamentals of clinical endocrinology in reproduction of livestock reproduction. 2. Hormonal regulation of oestrous cycle. 3. Physiology and endocrinology of pregnancy. 4. Embryo mortality and pathology of pregnancy. 5. Physiology of parturition. 6. Pregnancy disorders. 7. Physiology and pathology of the postpartum period. 8. Physiology and pathology of the newborn development. 9. Ovarian disorders. 10. Uterine and oviduct disorders. 11. Pig reproduction. 12. Reproduction in Small Ruminants 13. Etiology, pathogenesis and treatment of mastitis in cattle. 14. Mastitis in cattle - prevention and control. 15. Biotechnology of reproduction in livestock animals. LABORATORIES DETAILED SCHEDULE: 1. Morphological evaluation of the reproductive organs of non-pregnant and pregnant females. Technique of clinical examination of reproductive organs in farm animals (rectal palpation, per vaginam, speculum examination). 2. Anatomy of the udder, its suitability for mechanical milking, preparation of the cow and udder for mechanical milking, milking hygiene. Selected aspects of milking machines and milking parlours. Mechanical milking as a cause of teat damaging and udder diseases. 3. Estrus cycle physiology in farm animals (cattle, pigs, small ruminants). Estrus and ovulation detection. Pharmacologic cycle regulation and hormonal protocols. 4. Clinical and laboratory diagnosis of pregnancy in farm animals. 5. Dystocia- practical classes. Pharmacological parturition induction and parturition assistance in farm animals 6. Management of dystocia, obstetric equipment, cesarean section and fetotomy. 7. Anesthesia in obstetrics. Newborns and congenital defects. 8. Postpartum period, diseases of vagina and uterus. 9. Diseases of ovaries and oviducts in farm animals. Use of ultrasonography in gynecology and obstetrics- sonograms analyses. 10. Surgical procedures in reproductive tract. Surgery of udder. 11. Laboratory diagnosis of infection and inflammation of udder (milk sampling, storing, culturing, pathogen identification, antibiograms). Clinical diagnosis and diagnostic tools for mastitis. 12. Mastitis treatment in farm animals 13. Clinical examination of reproductive tract-practical classes. 14. Use of ultrasonography in cattle and pigs reproduction 15. Clinical examination of udder in cattle, diagnosis of udder diseases (general examination, detailed examination of udder, field tests). The training content of the lectures are complementary to the training content of the exercises.
Teaching forms, number of hours:	a) Lectures; 30 hours b) Clinical laboratories; 45 hours;
Teaching methods:	Oral presentation with audio-visual techniques e.g. videos, 3D animated visualization or other multimedia presentations with practical training on isolated organs and phantoms, training in the diagnosis and therapy of diseases in slaughter-houses and clinics, flocks and studs, on University owned teaching mares, clinical patients and production animals. Part of the course is conducted with the use of multimedia techniques, e.g. computer programs, videos and computer presentations Detailed schedule will be defined by the coordinator of the course at the beginning of semester. Detailed organization of consultations will be defined by the coordinator of the course at the beginning of semester.

Formal prerequisites and initial requirements:		Animal physiology modules 1-2, Animal anatomy modules 1-2, Histology and embryology modules 1-2, Veterinary pharmacology modules 1-2, Pathomorphology modules 1-2, Pharmacology 1-2, Clinical and laboratory diagnostics modules 1-2, General surgery and anesthesiology, Veterinary epidemiology, Parasitology and invasiology modules 1-2, Immunology, Biochemistry modules 1-2, Veterinary microbiology modules 1-2. Student should have holistic knowledge and ability to connect and extrapolate previously learned topics into coherent ideas regarding prevention, diagnosis, therapy and management of animal condition		
Learning effects		Course outcomes:	Learning outcomes relative to the course outcomes	Impact on the course outcomes*
Knowledge:	1	Student knows and understands farm animals reproductive physiology and main hormonal regulation regarding reproduction	B.W.1, B.W.3, B.W.4, B.W.5, B.W.6, B.W.12	2
	2	Student knows proper methods and instruments to diagnose and treat reproductive tract disorders, knows how to tame farm animals	B.W.1, B.W.3, B.W.4, B.W.5, B.W.6, B.W.12	3
	3	Student knows proper methods of selected reproductive tract disease examination	B.W.1, B.W.3, B.W.4, B.W.5, B.W.6, B.W.12	2
Skills:	1	Student executes anamnesis with the aim of gathering detailed information about single animal, stud and their environment	B.U.2, B.U.20, B.U.21	1
	2	Student executes general and systemic clinical examination regarding the reproductive system, both manually and with the use of appropriate additional methods e.g. instruments and utensils	B.U.3, B.U.7, B.U.13	1
	3	Student knows proper methods and instruments to examine, diagnose and treat the reproductive system organs during the parturition	B.U.3, B.U.7, B.U.13	3
	4	Student knows proper methods and instruments to examine, diagnose and treat the mammary gland	B.U.3, B.U.7, B.U.13	2
Competences:	1	Student is able to apply proper prevention of farm animal diseases	B.W.15, B.U.10	1
	2	Student is able to implement proper treatment of farm animals, understands the necessity of consultancy and is prepared to share the competencies with the veterinary team and the animal's owner/career in accordance to professional ethics	B.W.1, B.W.3, B.W.4, B.W.5, B.W.6, B.W.12	2
	3	Student is able to critically evaluate knowledge and use scientific sources to supplement it	B.W.1, B.W.3, B.W.4, B.W.5, B.W.6, B.W.12	2
Objectives of the module required to obtain learning effects:		Program includes lectures and practical exercises in farm animal reproduction. During the course students gain knowledge and practical abilities in propaedeutics and reproduction physiology, farm animal obstetrics, gynaecology, mammary gland diseases and herd health programs.		
Assessment methods:		Partial tests, written exam In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted.		
Detail description of assessment methods; Formal documentation of learning outcome:		Partial tests - written tests containing 3 open questions, for each maximum 2 points. Scoring on each of tests: 6 points - 5.5 points - grade 5.0; 5 points - grade 4.5; 4.5 points - grade 4.0; 4 points - grade 3.5; 3.5 points - rating 3.0; 3 points and less - 2.0. Number of partial tests - 3; dates I and II take place in the same form. The final grade of the labs is the arithmetic average of grades from I and II test. The final grade of the labs is issued according to The following scale: < 3,0 – grade 2,0 3,0 – 3,25 – grade 3,0 3,26 – 3,75 – grade 3,5 3,76 – 4,25 – grade 4,0 4,26 – 4,50 – grade 4,5 4,51 – 5,0 – grade 5,0 To take the exam you must have completed partial tests Written exam covering all content of subject education, 50 test questions, for 1 points each. The score on the exam is: 50 - 45 points. - grade 5.0; 44 - 40 points - grade 4.5; 39 - 35 points - grade 4.0; 34 - 32 points - grade 3.5; 31 - 30 points - grade 3.0; 29 points and less - grade 2.0. No extra assessment methods are anticipated. eHMS entry.		

	Records collected in the course portfolio i.e. individual records of student results, presence lists, database of oral and written questions, written assessments of the students.
Elements impelling final grade:	To pass the course you must have no more than 20% of absences or in accordance with current study regulations. The final grade is attended by: passing exercises with 0.4 weights of this grade and an exam grade of 0.6 weights final grade, each of which must be a positive grade (i.e. 3.0 or more). Scale (weighted average of exercise and exam grades): <3.0 - grade 2.0 3.0 - 3.25 - grade 3.0 3.26 - 3.75 - grade 3.5 3.76 - 4.25 - grade 4.0 4.26 - 4.50 - grade 4.5 4.51 - 5.0 - grade 5.0 The condition of passing the course is no more than 20% of absences or in accordance with the current study regulations.
Teaching base:	lectures - auditorium, auditory exercises - class room, laboratory exercises – departments labs and dispensaries, field exercises - RZD Obory or other farms of farm animals. Slaughterhouses.
Mandatory and supportive materials : Textbooks: 1. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England 9th ed. Saunders, Elsevier, 2009 2. Large Animal Theriogenology. R.F. Youngquist, W.L. Threlfall. 2nd ed. Saunders, Elsevier. 2007 3. Biotechnologia rozrodu zwierząt udomowionych. A. Bielański i M. Tischner. Drukrol S.C., 1998 4. Pig diseases. D.J. Taylor, St Edmundsbury Press Ltd, Bury St Edmunds, Suffolk 2006 5. Diseases of swine, 10th edition, John Wiley and Sons Inc. 2012, Ed. J.J. Zimmermann, L.A. Karriker, A. Ramirez, K.J. Schwartz, G.W. Stevenson 6. Large animal internal medicine. Bradfort P. Smith , MOSBY St.Louis London Philadelphia Sydney Toronto, 2005. 7. Sheep and goat medicine. Pugh D.G, W.B. Saunders Company. Philadelphia, Pennsylvania, 2002. 8. Diseases of dairy cattle. Thomas J. Divers, Simon F. Peek, Saunders Elsevier. 2008. 9. Free radicals basics of cattle diseases. Kleczkowski M., Kluciński W., Bartosz G, WPAŁD and BWLSS. Lomza. 2006. 10. Handbook of Pig Medicine, Elsevier 2007, Jackson P., Cockcroft P Journals: Theriogenology, Animal Reproduction Science, Reproduction of Domestic Animals, Biology of Reproduction, Reproduction, Molecular Reproduction and Development, Reproductive Biology, Cloning, Archives of Andrology, International Journal of Andrology, Life Veterinary, Veterinary Medicine Supplementary data sources: 1. www.oie.int 2. www.isid.org 3. www.pubmed.com Relevant scientific publications, including those of the module coordinator. ANNOTATIONS For reasons of occupational health and safety at the Clinic, the participants should wear medical long pants and sweatshirts or aprons with short sleeves (up to the elbow) and have with them: a surgical mask and cap, changed footwear - flat footwear soles covering the foot, you can also have shoe covers.	

* 3 – complete and detailed, 2 – moderate, 1 – basic.

Quantitative summary of the module:

Estimated number of work hours per student (contact and self-study) essential to achieve presumed learning outcomes of the module - base for quantifying ECTS:	120 h
Total ECTS points, accumulated by students during contact learning:	3 ECTS