Module title:	Andrology and artificial insemination	ECTS	3
Polish translation:	Andrologia I sztuczne unasienianie		
Course:	**Veterinary Medicine**		

Module language: English		Stage: JM-FVM	
Form of studies: ■ intramural ☐ extramural	Type of module: ☐ basic X directional X mandatory ☐ elective	Semester summer 8	☐ winter semester X summer semester
Academic year:	**Intake 2021/2022**	Catalogue number:	**FVM-V-JMSS-08S-D06_20**

Module coordinator:	**dr hab. Sławomir Giziński DVM PhD DSc**
Teachers responsible for the module:	**Staff and PhD students of the Department of Large Animal Diseases with Clinic**
Objectives of the module:	The aim of the course is to acquaint students with the basics of andrology and artificial insemination of animals. The program includes subjects on veterinary clinical andrology for the treatment of infertility and male diseases. Furthermore includes basics knowledge on different techniques of reproductive biotechnology, as artificial insemination, embryo transfer, assisted reproduction techniques. Students will receive the recent knowledge concerning the functional anatomy of the male reproductive system, endocrine control of testicular function, spermatogenesis, and its control, male sexual behaviour, semen analysis, semen preservation, male sexual function pathology, pharmacological control of sexual function of male and female. They also learn about the physiology of female sexual cycle, oestrus synchronization, superovulation, embryo transfer and assisted reproductive techniques.
Teaching forms, number of hours:	a) Lectures: 15 h b) Laboratory classes hours 10 c) Clinical classes; hours 15
Teaching methods:	Presentations with demonstrations and discussion on the presented material, experiments
Formal prerequisites and initial requirements:	Animal anatomy modules 1-2, Histology and embryology modules 1-2, Biochemistry modules 1-2, Animal physiology modules 1-2, Immunology, Pathomorphology 3 Student should have a good knowledge of the subjects mentioned above.

Learning effects		Course outcomes:	Learning outcomes relative to the course outcomes	Impact on the course outcomes*
Knowledge:	1	principles and techniques of artificial insemination in selected animal species	W_NK1	2
	2	principles of cryopreservation of sperm from males of different species	W_NK3	2
	3	The student knows the criteria for selecting embryo donors and recipients	W_NK3	3
	4	The student knows and understands the principles of diagnosis, treatment and prevention of diseases of the male reproductive system.	W_NK7	2
Skills:	1	The student is able to conduct a clinical examination of a stud male , with particular emphasis on its suitability as a reproductive animal.	U_OUZ3, U_PUZ2, U_PUZ3	3
	2	Student is able to collect semen independently after preparing the appropriate instruments	U_PUZ6, U_PUZ7, U_PUZ10	2
	3	Student is able to perform artificial insemination on cows, mares, female dogs and sows	U_PUZ17, U_PUZ12,	2
Competences:	1	The student works in a team and complies with the veterinary code of ethics and deontology towards owners and their animals.	K_KP1, K_KP2,	3
	2	After completing the course, the student is able to provide insemination services to farm animal owners, contributing to increasing the animal population and, consequently, the quantity and quality of food products of animal origin.	K_KP9, K_KP12, K_KP3, K_KP13	2
Objectives of the module required to obtain learning effects:		The program includes lectures and practical exercises in the field of andrology, biotechnology and artificial insemination of farm and companion animals. During the course, students acquire knowledge and practical skills in the above-mentioned areas with particular emphasis on practical procedures necessary for field and laboratory work in the aspect of gamete and embryo evaluation.		

Assessment methods:	Final exam testing overall theoretical and practical knowledge. 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:	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:	Passing a partial colloquium is a condition for admission to the final exam. The exam includes all content of the course, 40 closed questions (test, single choice), 1 point each. Exam score 40-36 points. – rating 5.0 35-32 pts. – rating 4.5 31-28 points – rating 4.0 27-26 points – rating 3.5 25-24 points – rating 3.0 23 points and less - rating 2.0. Apart from the indicated methods of verification of learning outcomes (form, number), no additional methods are provided
Teaching base:	Equine Clinic (Wolica), Small Animal Clinic (Ursynów), State Stud Farm in Łąck, near Warsaw
Mandatory and supportive materials : 1.Laboratory Production of Cattle Embryos. 2nd ed. I. Gordon, CAB Publishing, 2003 2. Reproductive Technologies in Farm Animals. I. Gordon, CAB Publishing, 2005 3. Large Animal Theriogenology. R.F. Youngquist, W.L. Threlfall. 2nd ed. Saunders, Elsevier. 2007 4. Veterinary Andrology & Artificial Insemination. M.S. Saxena. CBS Publishers & Distributors, 2011 5. Applied Veterinary Andrology and Frozen Semen Technology. M.K. Shukla, NIPA 2011 Journals: Theriogenology, Animal Reproduction Science, Reproduction of Domestic Animals, Biology of Reproduction, Reproduction, Fertility and Sterility, Reproductive BioMedicine Online, Archives of Andrology, Internatiomal Journal of Andrology, Andrology Relevant scientific publications including those of the module coordinator.	
ANNOTATIONS	

* 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:	**80 h**
Total ECTS points, accumulated by students during contact learning:	**3 ECTS**