

<b>Study Program: OAS Animal Science</b>
<b>Course Unit Title: Biotechnology in Animal Reproduction</b>
<b>Course Unit Code:</b>
<b>Name of Lecturer(s): Dragin B. Saša</b>
<b>Type and Level of Studies: Bachelor Studies</b>
<b>Course Status (compulsory/elective): Elective</b>
<b>Semester (winter/summer):</b>
<b>Language of instruction: Serbian</b>
<b>Mode of course unit delivery (face-to-face/distance learning): face-to-face</b>
<b>Number of ECTS Allocated: 6</b>
<b>Prerequisites: Passed courses: Animal Physiology and Reproduction in Domestic Animals</b>
<p>Course Aims: Gaining modern theoretical and practical knowledge in the field of biotechnological methods of control of reproductive processes (full maturation, estrus cyclicity, fertilization and gravity, partus and lactation) in certain animal species. Detailed introduction to modern artificial insemination and transplantation techniques of embryos, as well as in vitro manipulation methods with gametes and early embryos (in vitro maturation and oocyte fertilization, reproductive cloning of early embryos, obtaining identical twins, formation of chimeras, transgenesis, long-term preservation of spermatozoa, oocyte and early embryos, the formation of a gene bank ex situ). Application of this knowledge for understanding and practical solving of problems from other related disciplines of animal science and practice.</p>
<p>Learning Outcomes: Ability to independently apply modern biotechnological methods in the management of reproductive functions of domestic mammals, other types of mammals and birds. Ability to successfully transfer acquired knowledge to other people after the completion of the studies, as well as to acquire the conditions for continuing studies at higher levels of education in the field of biotechnological sciences (master academic studies).</p>
<p><b>Syllabus:</b></p> <p>Theory: Functional morphology of female and male reproductive organs of mammals and birds; Physiology of reproduction of mammals and birds (endocrine regulation of reproductive functions; physiology of female sexual functions; physiology of male sexual functions). B. Biotechnology of reproduction: artificial insemination of cattle, pigs, sheep, goats, horses, dogs, cats and domestic bird species; embryo transplantation; manipulation with gametes and early embryos in vitro; estrus induction; superovulation induction; induction and synchronization of estrus beyond the season of mating of sheep, goats and mares; synchronized parturition induction; Diagnosis of pregnancy; Determination of sex of gametes and embryos.</p> <p>Practice: a) Laboratory work: Anatomy and histology of male and female sex organs; Endocrine reproduction; Quality control of sperm; Dilution of sperm and formation of insemination doses; Methods of pregnancy detection; Development of fetus and structure of fetal envelopes; Methods of diagnosis of pregnancy; Help with normal part; Analysis and assessment of the reproductive efficacy of the herd. b) Field practice: Performed on livestock farms and experimental facilities of the Department of Animal Husbandry, and include: Artificial insemination of certain types of domestic animals; Hygiene and</p>

health protection of certain categories of breeding animals.

**Required Reading:**

- 1) Dragin S., Stančić I., Jotanović S.: Biotechnology in animal reproduction (textbook), Faculty of Agriculture, Novi Sad, 2016.
- 2) Dragin S., Stančić I., Erdeljan M.: Reproduction of domestic animals (practice book). Faculty of Agriculture, Novi Sad, 2011.
- 3) Stančić B.: Technology of Artificial Insemination of pigs (handbook). Faculty of Agriculture, Novi Sad, 2006.
- 4) Gordon, I.: Reproductive Technologies in Farm Animals. CABI, Publ., UK, 2005.

**Weekly Contact Hours: 60**

**Lectures: 30**

**Practical work: 30**

**Teaching Methods: Oral presentation, slides, ppt-presentation, overview of preparations, practical work in the laboratory and on farms, consultations, seminar papers**

**Knowledge Assessment (maximum of 100 points):**

<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class participation	5	written exam	
Practical work	5	oral exam	50
Preliminary exam(s)	20	.....	
Seminar(s)	20		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.