

Brochure V. year

Dear Students,

The compilation of the brochure that you hold in your hand was originally “thought up” and recommended by the students of the English class in 2011. Of course now you have the updated version of the brochure. Without their recommendation and ideas this little information brochure would not have been born. After collecting the comments and suggestions and evaluating them, a very detailed summary was put together indicating the main points.

This brochure contains information concerning the subject of obstetrics, the history and staff of the Department, a timetable is included, topics of the lectures and practicals, and recommended reading are given, topics and dates of written tests and exams are also given, department services are summarized, information is provided connected with the preparation of diploma thesis also can be found in this brochure and so on.

Therefore, I ask your further help and encourage you to share your opinions about this brochure; how and where we should improve its quality, what information still we should include into it in order to help you through your study of obstetrics.

Budapest, 6th September 2019.

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Head of the Department

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Veterinary reproduction and obstetrics

The subject deals with the physiology and pathology of reproduction (reproductive physiology and pathology). The subject is of enormous importance, since without reproduction there is no production and without these two there is no useful long life-span, upon which depends the economy of animal husbandry. Nowadays the economy is of great significance and is considered a decisive factor, and in respect to the world there is an ongoing harsh struggle. In companion animals the goal of veterinary intervention is sometimes the maintenance of pregnancy, or the achievement of optimal fertility and maximum number of offspring, but in other cases our aim is totally the opposite: to attain reversible or irreversible infertility (contraception).

For the reproduction of mammals two partners are necessary; female and male animals. Therefore obstetrics and reproductive biology deals with both the female and the male genital/sexual processes.

Reproduction is a cycle, and within this we can mention the small and large cycles. The small cycle includes the actual sexual cycle, *cyclus s. periodus sexualis*, while the large cycle includes the period which elapses between the two calving, and this is called inter calving period. The *service period* belongs to the large cycle, that is, the period that passes between the calving and the re-conception. Within the reproductive cycle the period of pregnancy, *graviditas*, and later birth, *partus*, are essential. The course of the *puerperium*, the post-birth condition, plays a crucial role in postpartum fertility preservation.

Animals that possess reproductive abilities are designated as fertile. After the sexual intercourse (mating, copulation) of fertile animals the fertilization of the oocyte (egg) occurs and after that

cell division starts and as a result of this first the embryo, then the fetus develops. The science dealing with the reproduction of female animals is one of the branches of science that discuss the large cycle. This discipline is known as **obstetrics**.

Reproductive biology deals with the reproductive capability of both males and females. Within this, **gynecology** deals with the pathophysiology (pathophysiologia) of the sexual/genital function of females, while **andrology** discusses the pathophysiology of the genital organs of males.

Within the subject we deal with those **techniques of assisted reproduction**, that are meant to increase the reproductive and productive capabilities of domestic animals. The first assisted reproductive technology, which was introduced in practice was artificial insemination, that was followed by embryo transfer. Presentation of fresh knowledge about the latest biotechnological interventions (ex. cloning or research on stem cells) are also part of the subject. Possibilities of application of these latest techniques and also current limitations of their use are discussed.

There can be a number of reasons for the decrease in reproductive capacity: 1. infectious and 2. non-infectious. In the latter group the ecological conditions play a vital role, including conditions of keeping, housing, nursing, handling, feeding, which are managed by the farmers. If the animals are not fed according to their reproductive / fertility needs the females can become infertile, the males can lose their sexual potency (libido) and become impotent. As a result of the inadequate conditions of animal keeping, nursing, housing, feeding, and breeding conditions the absorption of embryos can occur at a greater percentage (20-30%).

The full potential of the domestic animals' reproductive capability can only be achieved, if the females can rear their offspring. The most important condition of this is that the mothers can feed their newborns. For this reason, the **physiological functions and disorders of the udder** will be discussed within the frameworks of this subject. In addition to this the development and functioning of the udder is in close relation to the development and functioning of the genitals, pregnancy, delivery forecast, etc.. In addition to reproduction, an indispensable part of the economics of breeding is that the newborn animals, in as large percentage as possible, have to be able to survive and stay alive. Therefore, within the frameworks of this subject, we deal with the deficiencies of **obstetric hygiene**, problems resulting from **unprofessional delivery assistance**, and **attending to newborns and their diseases** as well (dealing with birth-related diseases).

Short introduction of the department's history

<http://univet.hu/en/about/units/department-and-clinic-of-reproduction/>

Recognizing the practical importance of obstetrics, Béla Plósz have started teaching veterinary obstetrics as an independent subject in 1899. He used phantoms to demonstrate obstetrical aid and slaughterhouse calves for fetotomy. From this time on, castration and ovariectomy became a significant part of the veterinarian's activities. One of his most famous students and successors was Henrik Hetzel who introduced several new aspects such as prevention of infertility, physiology and pathology of embryo development, pregnancy and parturition. Infectious diseases of the reproductive organs, reproductive disorders caused by improper feeding and housing systems and metabolic diseases were also discussed. Hetzel initiated to establish a new clinic for obstetrics which was opened in 1930. His successor, Kálmán Bölcs házy introduced several hormonological methods, invented many obstetrical instruments and dealt with reproductive problems of the concentrated, intensive farming systems. Both Hetzel and Bölcs házy compiled several study books about animal reproduction and veterinary obstetrics. In collaboration with István Mészáros, the next head of the department Sándor Cseh has been working in organization of the national artificial insemination network. He introduced the training of artificial insemination for veterinary students and wrote books about obstetrical surgery and veterinary obstetrics. After his early death György Horváth became the leader of the department. His research activity focused on the field of mastitis and udder health. In 1973 the department moved to its present location into the new buildings and János Haraszti was nominated as chair of the department. Under his leadership there was a significant development in clinico-chemical and endocrinological methods and in the biotechnological research including the embryo transfer. After him László Zöldág became the chair with special interest in small animal reproduction and andrology. Since 1994 László Solti has been appointed to the head of the department. His research interest focused on the field of development and introduction into the practice of new immune-analytical procedures (CPBA, RIA and ELISA). His other research field was the animal biotechnology. He took part in the introduction of the embryo transfer procedure in Hungary. After 17 years of leadership, in 2011 the head of department position was taken over from László Solti by Sándor Cseh.

Tasks of the department:

1. Theoretical and practical education of the students
2. Basic and applied research connected with reproduction
3. Clinical and laboratory service connected with female and male reproduction

I. EDUCATION (THEORETICAL AND PRACTICAL EDUCATION)

<http://www.univet.hu/en/university/units/department-and-clinic-of-reproduction/education>

1. Veterinary obstetrics and reproduction (Mandatory course)

The discipline is divided into the following main subjects: obstetrical aid and udder health (7th semester; Obstetric 1.), gynecology and reproductive care of different animal species (8th semester; Obstetrics 2.); andrology, assisted reproduction and biotechnology (9th semester, Obstetric 3). These subjects are covering the entire oestrous cycle, fertilization and pregnancy, parturition, puerperium and resumption of postpartal ovarian activity as well as reproductive management. Students can learn not only the theoretical aspects of neuroendocrine regulation of reproductive processes but also the most frequently used operative techniques like Caesarean section, ovariohysterectomy, teat operation or vaginal prolapse. In addition to these traditional topics, assisted reproduction such as collection and cryopreservation of semen or embryos, artificial insemination and embryo transfer, in vitro fertilization, cloning and transgenic animals are also taught.

Year: 4th, 5th

Term (semester): 7th, 8th, 9th

Lectures: 45h/semester (7th, 8th semester), 30h/semester (9th semester)

Practicals: 45h/semester (7th, 8th semester), 30h/semester (9th semester)

ECTS Credits: 4 (7th semester), 3 (8th semester), 7 (9th semester)

Examination: 7th semester: colloquium (written examination), 9th semester: final examination

Thematics:

7th semester: Reproductive physiology. Obstetrical aid. Ruminant reproduction. Udder health.

8th semester: Reproduction of various species: horse, swine, dog, cat.

9th semester: Andrology. Assisted reproduction. Biotechnology.

Requirements:

<http://www.univet.hu/en/university/units/department-and-clinic-of-reproduction/education/teaching-guides>

Detailed description of the requirements to fulfill the subject and acceptance of semesters can be found and downloaded from the self-developed website of the Department (see: Education and monitoring of the acquired knowledge in „Obstetrics, reproduction and udder health care”)

Shortly the main points of the monitoring and evaluation system are the followings:

7th semester: semester-ending exam (mark offered based upon the result of the midterm tests or written exam)

8th semester: practical grade (mark offered based upon the result of the midterm tests or written exam)

9th semester: final exam (preconditions to take the exam: valid, accepted three semesters, completed obligatory participation in specified diagnostic and therapeutic activities with written documentation (“Clinical card”).

Recommended readings

- D.E. Noakes, Timothy J. Parkinson and Gary C.W. England (eds): Veterinary Reproduction and Obstetrics. 9th edition, Saunders Elsevier, London, 2009.
- M.H. Pineda and Michael P. Dooly (eds): McDonald’s Veterinary Endocrinology and Reproduction. 5th edition, Iowa State Press A Blackwell Publishing Company, 2003.
- R.S. Youngquist and Walter R. Threlfall (eds): Current Therapy in Large Animal Theriogenology. 2nd edition, Saunders Elsevier, St. Louis, Missouri, 2007.
- E.C. Feldman, R.W. Nelson: Canine and feline Endocrinology and reproduction. 3rd edition, Saunders 2004.
- P.L. Senger: Pathways to pregnancy and parturition 2nd edition, Pullman: Current Conceptions Inc. 2003. (3rd edition, 2011.)
- M. Sandholm, T. Honkanen-Buzalski, L. Kaartinen, S. Pyörala: The bovine udder and mastitis. 1st edition, University of Helsinki, faculty of Veterinary Medicine, Helsinki, 1995.
- Gary England, Angelika von Heimendahl: BSAVA Manual of Canine and Feline Reproduction and Neonatology. 2nd edition, British Small Animal Veterinary Association, Gloucester, 2010.

2. Andrology and Assisted Reproduction (Elective subject)

<http://www.univet.hu/en/aotk/department-and-clinic-of-reproduction/courses/andrology-and-assisted-reproduction/>)

The procedures included in the assisted reproduction techniques are used to aid the reproductive process of both humans and animals. The technical aspects of the assisted reproduction methods used in humans and animals (especially domestic animals and primates) are very similar, although of course there are substantial differences in the indication of assisted reproduction. The main object of the course is to familiarize the students with the advances made in the new areas of reproductive biology in the past quarter-century, since it has undergone intensive development, and with the new reproductive techniques (assisted reproduction techniques). The curriculum has been entirely processed in Power Point format. The files available, for each lecture, in the form of an outline contain all the essential information and elements of the curriculum. The material is updated every school year and, free of charge, it is made available to the students in its entirety on a CD in order to make the preparation for the exams easier.

Year: 5th

Term (semester): 10th

Lectures: 20 h

Practical: 10h

ECTS Credits: 6

Examination: colloquium; written exam (test)

Teaching staff: Sándor Cseh, László Solti and invited lecturers from abroad and Hungary

II. BASIC AND APPLIED RESEARCH CONNECTED WITH REPRODUCTION

<http://www.univet.hu/en/aotk/department-and-clinic-of-reproduction/subpages/research/>

- - Cryopreservation of gametes and embryos
 - In vitro culture of embryos the effect of mycotoxins on in vitro development of embryos being early stages
 - Study on factors influencing the outcome of sheep embryo transfer
 - Study on the effect of long term melatonin treatment out of breeding season in Racka rams Effects of analgesics used for the castration of piglets on welfare and performance.
 - Influencing the ovine reproductive cycle with different hormone treatments

III. CLINICAL AND LABORATORY SERVICE CONNECTED WITH FEMALE AND MALE REPRODUCTION

Check our website for further readings.

<http://www.univet.hu/en/university/units/department-and-clinic-of-reproduction/services>

LIST OF THE LECTURES:

Obstetrics 3. 2019 Fall Program of Lectures for the English Course 9th Semester: Andrology, Artificial Insemination and Other Techniques of Assisted Reproduction MONDAYS from 13:15 in the “Hetzel Henrik auditorium”		
1.	9, Sept.	Embryo transfer I. History and practical application of biotechnology in animal reproduction. (Importance, principles. Multiple ovulation) (<i>Solti, L.</i>)
2.	16, Sept.	Basic principle of Embryo freezing. Embryo freezing techniques. (<i>Cseh, S.</i>)
3.	23, Sept.	Embryo transfer II. (Embryo recovery in different species. The morphological evaluation of recovered embryo) (<i>Solti, L.</i>)
4.	30, Sept.	Embryo transfer III. (Surgical and non-surgical methods for transfer of embryos in cattle and other species). (<i>Solti, L.</i>)
5.	7, Oct.	Embryo transfer IV. (micromanipulation of embryos) (<i>Solti L.</i>)
6.	14, Oct.	Principles of further advanced techniques in reproductive biotechnology. (sexdetermination; production of sex-sorted semen; cloning; gene manipulation techniques; production of transgenic animals) (<i>Solti L.</i>)
7.	21, Oct.	Structure of the male reproductive organs. Neuroendocrine regulation of the male reproduction. Endocrine and exocrine function of the testicles. Thermoregulation of the testis. (<i>Cseh S.</i>)
8.	28, Oct.	Physiology and pathology of epididymis and accessory sexual glands. The contagious epidymiditis and orchitis of rams. (<i>Cseh, S.</i>)
9.	4, Nov.	Artificial insemination. I. Semen collection, evaluation, dilution, and cryopreservation. (<i>Cseh S.</i>)
10.	11, Nov.	Artificial insemination II. (cattle, pig, small ruminants) (<i>Cseh, S.</i>)
11.	18, Nov.	Artificial insemination III. (rabbit, horse) (<i>Cseh, S.</i>)
12.	25, Nov.	Artificial insemination IV. (dog and cat) (<i>Cseh, S.</i>)
13.	2, Dec..	Infertility in males. The contagious epididymiditis and orchitis of rams. (<i>Cseh, S.</i>)
14.	9, Dec.	Guest lecturer – _____ <i>Guided by S. Cseh</i>

Practical training program:

TUESDAY		Üllő (Large animals)	Central campus in Budapest (Small animals)
1.	10 Sept.	<p><i>Participants:</i> Group 5-8. <u>8.15-10.30</u> <i>Group A: Ophtalmology</i> <i>Group B:</i> Andrology: Collection of semen. Semen quality in stallions. Technical presentation of AI in the mare (<i>A. Horváth</i>)</p> <p><u>11.00-13.15</u> <i>Group B:Ophtalmology</i> <i>Group A:</i> Andrology: Collection of semen. semen quality in stallions. Technical presentation of AI in the mare (<i>A. Horváth</i>)</p>	<p><i>Participants:</i> Group 1-4. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 3-4. 10.15 – 12.30 h: Group 1-2.</p> <p><i>Subjects:</i> Reproductive examination of the female dog, Methods for estrus stage determination in bitch (<i>Sz. Farkas, D. Kispál</i>)</p>
	17 Sept.	<p><i>Participants:</i> Group 1-4. <i>Subject:</i> Identical (<i>A. Horváth</i>)</p>	<p><i>Participants:</i> Group 5-8. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 7-8. 10.15 – 12.30 h: Group 5-6. <i>Subjects:</i> Identical (<i>Sz. Farkas, D. Kispál</i>)</p>
2.	24 Sept.	<p><i>Participants:</i> Group 5-8. <u>8.15-11.15</u> <i>Group A:</i> Andrology: Reproductive examination of stallion, bull, boar, ram and buck: Evaluation of potential breeding soundness (<i>O. Szenci</i>) <i>Group B:</i> Andrology: Collection of semen in the boar. Technical presentation of AI in ruminants, sow and rabbit (<i>A. Horváth</i>)</p> <p><u>11.30-14.30</u> <i>Group B:</i> Andrology: Reproductive examination of stallion, bull, boar, ram and buck: Evaluation of potential breeding soundness (<i>O.Szenci</i>) <i>Group A:</i> Collection of semen in the boar. Technical presentation of AI in ruminants, sow and rabbit (<i>A. Horváth</i>)</p>	<p><i>Participants:</i> Group 1-4. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 3-4. 10.15 – 12.30 h: Group 1-2.</p> <p><i>Subjects:</i> Reproductive examination of the male dog, Practical aspects of AI in dog (<i>K. Erdei, E. Szilágyi</i>)</p>
	1 Oct.	<p><i>Participants:</i> Group 1-4. <i>Subject:</i> Identical (<i>O. Szenci</i> and <i>A. Horváth</i>)</p>	<p><i>Participants:</i> Group 5-8. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 7-8. 10.15 – 12.30 h: Group 5-6. <i>Subjects:</i> Identical (<i>K. Erdei, E. Szilágyi</i>)</p>

TUESDAY		Üllő (Large animals)	Central campus in Budapest (Small animals)
3.	8 Oct.	<u>Participants:</u> Group 5-8. <u>Subject:</u> Visit to Bos-Genetic (AI Center – Martonvásár) <u>Organizer:</u> S. Cseh <u>Supervisor:</u> B. Somoskői	<u>Participants:</u> Group 1-4. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 3-4. 10.15 – 12.30 h: Group 1-2. <u>Subjects:</u> Clinical aspects of male reproductive disorders (L. Müller)
	15 Oct.	<u>Participants:</u> Group 1-4. <u>Subject:</u> Identical <u>Organizer:</u> S. Cseh <u>Supervisor:</u> B. Somoskői.	<u>Participants:</u> Group 5-8. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 7-8. 10.15 – 12.30 h: Group 5-6. <u>Subjects:</u> Identical (L. Müller)
4.	22 Oct.	<u>Participants:</u> Group 5-8. <u>Subject:</u> Visit to the Research Centre for Farm Animal Gene Conservation (in Gödöllő) <u>Organizer:</u> S. Cseh <u>Supervisor:</u> B. Somoskői	<u>Participants:</u> Group 1-4. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 3-4. 10.15 – 12.30 h: Group 1-2. <u>Subjects:</u> Clinical signs and treatment of vaginal prolapse and vaginal tumors, Clinical case discussions (L. Müller)
	29 Oct.	<u>Participants:</u> Group 1-4. <u>Subject:</u> Identical <u>Organizer:</u> S. Cseh <u>Supervisor:</u> B. Somoskői	<u>Participants:</u> Group 5-8. <u>Obst. practical hall</u> (building L, first floor) 8.00 – 10.15 h: Group 7-8 10.15 – 12.30 h: Group 5-6. <u>Subjects:</u> Identical (L. Müller)
Retake:		<u>Üllő:</u> (1st and 2nd pract.) Request information from Dr. András Horváth	<u>Budapest:</u> Visits: according to later information (Bence Somoskői) Small animal: the exact dates will be released later.

Important notes: You are kindly requested to pay attention to the followings:

- Students are asked to be present *wearing white coat* (and in Üllő *also rubber boots*).
- Making photos, video and sound recording of patients, treatments and any medical interventions are not allowed at the Clinic of Small Animal Reproduction. The selfies, photo recording of other students or members of the clinic are not allowed due to personality rights.
- On **8, 15, 22, 29**, the students are transported to the venue of visits by bus. The bus is intended to leave from the entrance to the university campus in István street at 8.00 h. Expected arrival back: at about 14.00 h.

Preparation of the Diploma thesis

For those students who prepare their diploma thesis at the Department of Obstetrics and Reproduction we warmly recommend to read carefully the information material provided by the Central Library of the Faculty

(http://konyvtar.univet.hu/?page_id=83&lang=en)

The order of duty at Small Animal Reproduction Clinic:

1. No more than five students have a permission to participate in clinical work in examination room and/or operation room of reproduction clinic simultaneously. The order is first one first serve except the students in obligatory duty. Students have to wear a clean white cloth or any type of surgeon's cloth which haven't been used at clinic of infective patients, and at the Department of Pathology.
2. In the operation room the use of operation cap, mask and plastic foot-muff (all arranged by the students oneself) is obligatory.
3. The touch, feed, drink and take for a walk of the hospitalised patients is forbidden except the agreement of the doctor of duty at the Reproduction Clinic.

Information on the neutering programme

A Memorandum of Understanding was signed by the representatives of the University of Veterinary Science, the National Food Safety Office, and the Ministry of Rural Development in 2013. According to this agreement the clinical veterinarians of the Department and Clinic of Obstetrics and Reproduction have been neutering shelter dogs since the beginning of November 2013. The main goal of the program is to provide an opportunity for our students to improve their practical skills. Therefore students are encouraged to participate in the surgeries.

Operations are performed in the morning on each day from Monday to Thursday (2 operations per day), in order to raise the number of patients available for practical training. According to the Department's preliminary calculations it is predicted that our students will have the possibility to take part in at least three surgeries before finishing their study at the University.

We won't organize a schedule for visiting the surgeries, because the capacity of the operating theatre is limited, furthermore students from the 11th semester, Erasmus students, and those on shifts will have priorities over the volunteers for entering the room. Nevertheless, we hope that our students will seek the possibility to take part in the program and will participate in the surgeries voluntarily, if the operating theatre is not full.

Budapest, 6th of September, 2019

Prof. Dr. Cseh Sándor
The Head of the Department
and Clinic of Reproduction